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REVOLUTION & COUNTER-REVOLUTION IN CHINA

THE RUSSIAN REVOLUTION

SCIENCE AND PHILOSOPHY

SCIENTIFIC POLITICS

BEYOND COMMUNISM

NEW ORIENTATION

NEW HUMANISM

INDIA'S MESSAGE

SHOUT
SHARE
IT

MATERIALISM

AN OUTLINE
OF THE HISTORY
OF SCIENTIFIC THOUGHT

By **M. N. ROY**

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PREFACE

TO THE SECOND EDITION

Since this book was written in 1934, and first published in 1940, religious revivalism has gained ground in philosophical thought. Mystic, and irrationalist tendencies have become more and more pronounced even in social philosophy and political theories. These developments are the symptoms of an intellectual crisis. Unbounded scepticism about the objective validity of scientific knowledge, about the scope of the cognitive faculty, has destroyed man's faith in himself. Sensitive minds are tormented by the imaginary uncertainties of value-judgment. The bewildered bulk of the civilised mankind can see only two ways out of a wilderness of intellectual confusion and the resulting moral chaos: one is the lure of protection offered by the totalitarian State (of any kind), and the certainty of a regimented economic, social and cultural life; the other is religious revivalism. The former is rejected by all who believe that social justice is compatible with individual liberty. But only a few realise that religious revivalism means lowering of the standard of the revolt of man against spiritual slavery, that it will be a return to mediaevalism in search of certainty and security in blind faith.

Doubt about the possibility of a non-transcendental metaphysics logically compels one to seek the criterion of truth and sanction of morality in the supra-sensual world' of delusion or in the dreamland of mystic experience. Unless the sanction of morality is found in man himself, the cry for a return to rationality and moral behaviour in-public life will be a cry in the wilderness. In other words, man must regain the faith in himself, if modern civilisation is to overcome the present crisis.

Man must believe either in himself or in God—a Non-ego, something other than himself and beyond his comprehension. The mystic, incomprehensible something may be placed outside, to be worshipped as God or contemplated as the Cosmic Principle or Universal Harmony or the Moral Order or Metaphysical Unity. In that case, we have an essentially ideological view of the world which cannot admit of freedom, either as choice or man's creativeness. Alternatively, the mystic, incomprehensible, metaphysical category, which belongs neither to the world of matter nor o£ ideas, is placed inside man—as intuition. In that case, we have mysticism. All ultra-modern philosophical systems, which may not advocate out-and-out religious revivalism, directly or indirectly lead to mysticism. Placing intuition above intelligence, they glorify irrationalism. The fascist theoreticians appealed to biology and anthropology for a scientific sanction of their contempt for human personality and individual freedom. Man will be helped to regain faith in himself by a philosophy which bases ethics on rationality, and, in the light of scientific knowledge, traces the roots of man's rationality through the entire process of biological evolution, to Reason in Nature. The fundamental principles of such a philosophy for the future were formulated as Materialism, a system of thought developed ever since the dawn of civilisation.

For various difficulties, the publication of the bigger book, *The Philosophical Consequences of Modern Science* may still be delayed for some time. Therefore, for the second edition, this introductory essay has been enlarged by two chapters; and the old text elaborated in many places.

I am thankful to Pandit Laxman Shastri Joshi Tarkateertha, for having prepared the notes on the sources of the quotations from Sanskrit texts.

Dehradun, February, 1951. M. N. ROY

CHAPTER I

PHILOSOPHY, METAPHYSICS AND THEOLOGY

THE ignorance of the primitive man imagines supernatural forces behind natural phenomena. But his mental development being too backward to think in the abstract, he conceives the imaginary super-natural forces as gods, more or less like himself, only with immensely greater powers. Yet, he is not capable of conceiving beings as essentially superior to himself. The gods, therefore, are more or less like human beings with similar physical construction, analogous feelings and passions. In every respect, they are only idealised human beings, representing the picture of what the primitive man would himself like to be.

These fantasies, however, do not satisfy those who want to know why things happen as they do. The phenomenon of life is not explained by the childish conception of a god holding out a lamp from behind the clouds, or the poetic conception of the sun-god riding in his chariot from the east to the west. Nursery tales may amuse a grown-up man, but do not convince him. Imagination is. not explanation; fantasy is not knowledge. Speculation about the causes of natural phenomena begins as soon as man reaches an intellectual level where his spiritual needs are no longer satisfied by the superstitions and fantasies of natural religion.

Philosophy, as defined by Pythagoras, is "contemplation, study and knowledge of the nature." Its function is to know things as (hey are, and to find the common origin of the diverse phenomena of nature, in nature itself. In the earlier stages of its development, philosophy, by its very nature, was materialistic. Later on, its dignity and distinction were monopolised by metaphysical and speculative thought. Philosophy begins

when man's spiritual needs are no longer satisfied by the primitive natural religion which imagines and worships a variety of gods as personifications of the diverse phenomena of nature. The grown-up man discredits the nursery-tales, with which he was impressed in his spiritual childhood and might still be amused. Intellectual growth impels and emboldens him to seek in nature itself the causes of all natural phenomena; to find in nature a unity behind its diversity.

Metaphysics also begins with the desire to discover a unity behind the diversity. But it leaves the ground of philosophy in quest of a noumenon above and beyond nature, something which is distinct from the phenomena. Thus, it abandons the enquiry into what really exists with the object of acquiring knowledge about it, and plunges into the wilderness of speculation. It takes up the absurd task of knowing the intangible as the condition for the knowledge of the tangible.

Originally, there was no difference between philosophy and metaphysics. Metaphysicians were engaged in the search for the unity behind the multiplicity of phenomena. After Aristotle, the term metaphysics lost its original meaning, and its subject matter came to be identified with speculative philosophy as against the pre-Socratic naturalism of the Ionian physicists. Ultimately, the whole circle was described, and metaphysics developing through centuries as speculation about the origin and nature of being, became hardly distinguishable from theology.

The subject matter of the Treatise, which subsequently came to be known as the "Metaphysics", had been described by Aristotle himself as "First Philosophy" or "Theology". Although God was included in the Aristotelian category of substance, the "First Philosophy" was not meant to be the "Science of God." Aristotle used the term "theology" rather in the sense of ontology. But Christian religious philosophy, having merged all real being in God, declared God to be the only being, and in

consequence thereof, the Aristotelian science of being (ontology) became the "Science of God".

Thanks to a mistake or misinterpretation of the significance of the Greek term, metaphysics was equated with supernaturalism: it set to itself the impossible task of prying into the transcendental being above and behind the physical Universe—of acquiring knowledge of the Reality behind the appearances. This wild-goose chase, begun by early mediaeval scholasticism, was carried on with an increasing zest by modern philosophers until Kant declared metaphysics (science of being) to be the concern of his transcendental Pure Reason, and made episte-mology the whole of philosophy. The reaction to this classical tradition, which wandered away from the original sound enough position of Aristotle on his authority, was the materialist metaphysics based upon the progress of the natural sciences in the eighteenth century. In order to be free from the ambiguity of the Aristotelian tradition, the new metaphysics appealed to the earlier tradition of the Ionian physicists.

Notwithstanding the naivety of some and extravagance of others of its earlier exponents, metaphysical Materialism made substantial contributions to the science of being until, towards the end of the nineteenth century, when some of its basic postulates were shaken by the advance of the physical sciences, and philosophical thinking was confused by an exaggerated importance attached to epistemological problems in view of certain apparent mysteries revealed by psychology. Nevertheless, the authority of the classical idealist (spiritualist) metaphysics had been successfully challenged. An attempt was made to revive the metaphysical realism of Descartes to offer the golden means as between the two clear-cut opposing views.

Modern metaphysical realism or realist metaphysics has, in course of time, split up into a variety of schools, all riddled with the fallacy of dualism, their common Cartesian heritage. Materialist metaphysics, having

the fullest regard for the growing knowledge about its scientific foundation, need have no hesitation in admitting that its ontology includes the world of the mind. If, on the other hand, metaphysical idealism, in so far as it is not a camouflaged theology, ceases to be dogmatic, a synthesis between the two is possible, and in consequence thereof we shall have a true science of things—a non-transcendental metaphysics. The problem is to bridge the apparent gulf between physics and psychology. A non-dogmatic materialist metaphysics, which will include all the positive elements of the classical philosophy of the Aristotelian tradition, can tackle the problem, whereas all the new-fangled schools of realism between themselves can only rationalise the fallacy of dualism and consequently make a mysticism out of metaphysics.

Speculative philosophy is the attempt to explain the concrete realities of existence in the light of a hypothetical absolute. It is the way not. to truth, but to dream; not to knowledge but to illusion. Instead of trying to understand the world, the only reality given to man, speculative philosophy ends in denying the existence of the only reality and in declaring it to be a figment of man's imagination. An enquiry which denies the very existence of the object to be enquired, is bound to end in idle dreams and hopeless confusion. The conception of a creator or the prejudice about a Supreme Being, First Principle, Final Cause, leads to teleology, which throws human thought in the vicious circle of metaphysics which for such a long time has appropriated the distinction of philosophy.

If the enquiry about the origin of the Universe starts not from the *terra incognita* of the hypothetical First Principle, but from the tangible and knowable concrete, it reveals the eternalness of nature, having no place for a creator. The assumption of a noumenon behind the world of phenomena, of an absolute reality behind deceptive appearances, is not the simple and right course. Speculative philosophy, therefore, beats about the bush,

without ever coming out of the confusion of its own creation. It is, as Feuerbach depicted, "like a hungry animal running round and round on a waste, as if driven by an evil spirit, while all around there lies endless green field." Strictly speaking, philosophy is materialism, and materialism is the only possible philosophy. For, it represents the knowledge of nature as it really exists—knowledge acquired through the contemplation, observation and investigation of the phenomena of nature itself. Therefore, materialism is not the monstrosity it. is generally supposed to be. It is not the cult of "eat, drink and be merry", as it has been depicted by its ignorant or malicious adversaries. It simply maintains that the origin of everything that really exists is matter;* that there does not exist anything but matter, all other appearances being transformations of matter, and these transformations are governed necessarily by laws inherent in nature.

With the assumption that the phenomena of nature are determined by the will of some supernatural being or beings, philosophy must make room for faith. What is super-natural, must be always beyond the ken of man, himself a product of nature, and therefore limited by the laws of nature. As soon as the cause of the phenomenal world is thus placed beyond the realm of human knowledge, the world itself becomes incomprehensible. There is the end of philosophy. Man must not aspire to solve the problems of the Universe. He should simply believe that the world is so because the God or the gods have made it so. It is idle to ask why God has made it so, and whence did God himself come. Such

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*Although, in the light of the latest discoveries of atomic physics, the term matter can no longer be used in the classical sense, it cannot be abandoned until a more appropriate new term is coined. The sense, however, remains unchanged: it is physical reality or the substance. Matter as classically conceived, is not the ultimate physical reality; but that does not prove that ultimate reality as known to-day is immaterial or mental or spiritual.

questions cannot be answered. Attempts to explain what is inexplicable by its very nature, are mere self-deception. Metaphysics has been very pertinently characterised as a. relapse into the savage ideology of magic. "Metaphysicians maintain (as if reverting to the original savage idea) that spirit is the true substance of material things, at least that material things depend upon a spirit or spirits for their existence..... In writing about magic, I have indicated the origin of the notion of force..... It appears. that these celebrated abstractions, 'force and matter', 'form and substance', 'spirit and body', may be traced, back to the savage mind."* Magic practised by the savage, is based upon the belief in invisible, intangible and inscrutable forces which operate from distance without any medium. In the last analysis, the fundamental principle of metaphysics is the same as the belief of the savage.

The difference between metaphysics and materialism is that, while the former starts from an assumption, the latter insists upon dealing with concrete things; while the former is bound by an unverifiable hypothesis and by axioms deduced therefrom, the latter does not accept any hypothesis or axiom unless it can be verified by empirical knowledge. The philosophy which has for its absolute standard an unknown and unknowable entity^ and pretends to penetrate the region of the unknown without the help of, and indeed by rejecting, the empirical knowledge of the tangible, is futile speculation. Its "abstract truth" is an empty dream and vain imagination. To seek the knowledge of the phenomena of nature in a hypothetical super-natural noumenon, is logically absurd and philosophically inadmissible. What is itself unexplained, cannot possibly explain other things. Such explanation is not philosophy. It is blind faith—the greatest obstacle to real knowledge. It is a plunge into.

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*Carveth Read, *Man and his Superstitions.*

what Kant so aptly described as the "wide and stormy ocean, the true home of mirage."

Metaphysics pretends to judge the reality of things by a standard, the very existence of which is not proved, and cannot be proved. That is not the way to the knowledge of things as they are. The correct method is to penetrate the unknown through the way already known. The unknown, if it really exists, must be only a prolongation of the known; it is conceivable only in that sense. Otherwise, if it is something qualitatively different from the known and knowable things, it can never be known. Its existence, therefore, cannot be proved. It is only a fantasy. The chase after a phantom does not increase our knowledge of the reality.

The unknown and invisible unity of the origin of things is but the abstract generalisation of the known and visible particulars. True philosophy was born with this principle. The Ionian Greek thinkers were the first to attempt a physical explanation of the phenomena of nature; to seek the unity behind the diversity of these phenomena, in nature itself. Those fathers of philosophy were necessarily materialists. The materialism of the ancient philosophers was no more a perverse deviation of sinful men from the pure pursuit of spirit than is modern materialism of experimental science.

As soon as the thinkers of antiquity outgrew the awe for the imposing phenomena of nature, they became curious about their causes. That curiosity was not yet necessarily anti-religious. Yet, it gave birth to science and philosophy which, after all, are the two names for the self-same thing. The natural religion of primitive people is free from any metaphysical conception. It does not explain the world with the assumption of a single First Principle or even as the work of a single creator. The cosmogonies of the Eastern as well as Greek mythology are full of ideas which are no more spiritualist than materialist; they are rather materialist than spiritualist. Through the process of clarification and development

those primitive ideas regarding the cause of natural phenomena led first towards materialism, and only later towards metaphysics.

The necessities of life impel man to observe the phenomena of nature. A certain crude notion of laws governing the phenomena inevitably results from the observation.* Man looks up at the sky at first neither to worship the all-powerful God in heaven, nor to admire the workmanship of the creator. More profane feelings actuate him to raise his eyes to the sky; it is to watch the clouds in the expectation of rain; to observe the movement *ot* the sun and moon, and to ascertain the location of stars so as to guide his steps in the desert or to navigate his vessels on the water; to anticipate the direction of the wind which might lead his sails to a friendly shore. Similarly, {ire is discovered by man not as a god to worship, but as a thing of purely material origin which can be helpful to his physical existence. The primitive man makes his first acquaintance with Mother Earth not as a goddess to be adored, but as an aggregate of clods which, subjected to his labour, bear him food. The struggle for existence brings man face to face with the diverse phenomena of nature, first, in their reality. This relation of man, himself a product of nature, with the phenomena of nature, would awaken in him the striving to discover their cause as well as the laws governing them, were he not tied to the fantasies and superstitions born of the primitive emotion of fear.

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*The neo-Kantian and akin positivist or empiricist schools hold that the notion of a law-governed nature grew from the other direction, being a projection of man's instinctive preference for orderliness. Instinctively, man behaves purposively and co-ordinates his behaviour; he ascribes a similar behaviour to nature, regarding it as a vast organism. Apart from other fallacies of this view, there remains the basic question: Why and how is man instinctively orderly or purposeful? To make an elementary indefinable of a highly complex biological function, is neither science nor philosophy.

The first form of religion proper marked as much the beginning of faith as of science. It is not the result of any "spiritual" urge in man. It is not the evidence of his innate faith in forces super-natural. It does not prove that even the primitive man has a higher self which transcends the limitations of his corporeal existence, and seeks satisfaction in communion with the divine essence of things. It proves that the spiritual life of man consists of his eagerness to know the world in which .he lives; and his eagerness is a purely biological function. The highest product of nature, the human organism is equipped with the capacity of acquiring unlimited knowledge of things which surround it, inciting it constantly to activities of diverse kind—sensual, nervous, cerebral and creative. With the appearance of the human organism, adaptation to natural environments ceases to be the motive force of evolution. The struggle for human existence is the struggle for the domination of the forces of nature; and knowledge of the diverse phenomena of .nature is the condition for human existence and progress.

The inquisitiveness of man, which leads to the establishment of natural religion, is also the first impetus to the birth of science. Natural religion is built upon the sound principle of causality—nothing happens without a cause. Even magic, the ideology of the savage, is based upon a hazy notion of this sound principle. Science also starts from (his principle. Therefore, as long as man remains in close touch with nature—throughout the period of primitive communism—religion is but the naive form of nascent science. Science begins with the question regarding the cause of things. As soon as the regularity of the diverse phenomena of nature is detected, and the causal connection underlying them is even vaguely surmised, natural science is born. The superstitions of polytheism are not decisive checks upon reason. This is a human faculty more primitive than faith, which rules out reason as incompatible with the "spiritual essence" of man. Full of absurd superstitions, polytheism, in its

primitive purity, nevertheless is not vitiated with metaphysics. Faith, not buttressed upon the imaginary rock of revelation, is bound to be half-hearted, ready to make compromise with reason, if the latter promises greater knowledge of nature than can be acquired by the grace of gods.

The rituals and ceremonies of natural religion are so to say technological contrivances for controlling the forces of nature for human welfare. The primitive man does not strive for the salvation of his soul from the bondage of nature. The absurd notion that he is not a part of nature is not his. He is free from the illusion that his real self is something apart from and beyond the realities of life. He lives too close to the Mother to deny her existence. His concern is with things of this world. After death, his individual existence would be submerged into that of the community; or he would attain the celestial home of gods, and acquire the power of gods, to control the forces of nature more effectively than by sacrifices, ceremonies and rituals.

The scientific essence of natural religion, however, cannot outgrow its superstitious form until social evolution brings into existence a class of people free from the care of getting the means o£ subsistence by manual labour, and therefore in a position to contemplate nature with detachment. So long as man lives too close to nature, he is overwhelmed and terrified by its phenomena. No rational thinking is possible under such conditions. Just as a picture can be duly appreciated only from a certain distance, just so can nature as a whole be visualised in. correct perspective only when contemplated from a distance. So long as in his daily life man feels himself to be a helpless victim of the forces of nature, it is not possible for him to take a rational attitude towards them; for, such an attitude presupposes detachment, and there can be no detachment when the relation is that of subordination.

The rise of cities detached a section of the antique society from the close association with nature. The

expansion of trade and development of manufacturing, industries quickened that process of social differentiation. There rose the class of merchant-princes-landlords engaged in opulent trade—which was in a position to develop the scientific essence of natural religion. By virtue of its freedom from the necessity of earning a livelihood by manual labour, which implied helpless subordination to the forces of nature, the new social class was no longer overwhelmed by them. Thus, it was able to look upon the forces of nature not with awful veneration, but to observe them, in their causal connections. Nor was such observation a purely intellectual pastime. It was a social necessity, connected directly with the economic being of those engaged in it. The merchant-princes themselves, in their daily life, were no longer at the mercy of the forces of nature. But their power, position and prosperity were based mainly upon the two branches of social activity which were subject to those forces. Agriculture and navigation (for the purpose of trade) required observation of the diverse phenomena of nature. That observation, made by a class of people not subjected in their daily life-helplessly by the forces observed, produced results ruinous for the natural religion which had contained the germs of the observation.

The detection of a .mechanical regularity in the diverse phenomena of nature undermined the primitive-faith in gods. Rain, lightning, thunder, storm, rise and fall of temperature, ebb and tide, movements of the heavenly bodies—all these and many other phenomena closely associated with the daily life of man were not the actions of arbitrary deities. They happened necessarily, as inevitable effects of given causes, governed by laws inherent in nature itself. When close observation of the-phenomena of nature, and the calm of contemplation of its result dispensed with the necessity of propitiating, imaginary gods by means of rituals and sacrifices, science was born in the form of primitive philosophy which was naturally materialistic. The devotion to gods was

replaced by the desire to discover the mechanical laws of nature. The blind faith in super-natural beings yielded place to the inquisitiveness about the origin of things, which was sought in nature itself. That inquisitiveness led to the rise of philosophy in the true sense of the term. Natural religion—the cult of ascribing the diverse phenomena of nature to a variety of gods—brings in its train the class of priests. The gods must be propitiated with offerings and sacrifice, so that the natural phenomena they respectively control may go on normally for the benefit of man. The priests are supposed to be conversant with the mysterious ways of the arbitrary gods, so as to make the offerings and sacrifices acceptable to them. Though made nominally to the gods, the offerings and sacrifices actually become the source of income for the priests. They, therefore, build up an elaborate edifice of rituals and ceremonies on the basis of the primitive nursery-tales. As the intermediary between the helpless man and the powerful gods, the priest acquires a dominating position in society, and shapes its ideology. Under priestly monopoly, the spiritual progress of society cannot transcend the superstitions of natural religion. Eventually, the anthropomorphic gods might be subordinated to a supreme being—also an anthropomorphic conception. Or a sort of precarious monotheism might develop on the decayed foundation of a licentious polytheism. The more likely development, however, is towards pantheism; the other alternative is that of an intellectual curiosity provoking metaphysical speculations which end in the absurdity of declaring the world to be a delusion.

Philosophy, that is, enquiry into the causes of natural phenomena, is not possible under the conditions of priestly domination. Practically in all the lands of ancient civilisation—Egypt, Assyria, India, Persia, Rome—the sacerdotal monopoly of spiritual life prevented the quest for natural knowledge. Human mind is liberated from the superstitions of natural religion, thanks to the rise of a new non-priestly class of people, freed from the drudgery

of physical labour, but guaranteed an existence of leisure and comfort by the product of the labour of others. The new class rises as a challenge to the social monopoly of the priest. Its contributions to the development of abstract thought takes the form of philosophy only when it is completely differentiated from the priesthood. The differentiation is the result of the opening of new channels for the accumulation of wealth in the hands of a non-producing class. The non-sacerdotal intellectual aristocracy is usually composed of landlords engaged in the trade with articles manufactured by slave-labour. The necessity of the peasant as well as of the sea-faring trader to observe and understand the phenomena of nature creates in such an intellectual aristocracy, deriving benefit from both the forms of social activity, the impulse for the knowledge of things as they are. Its economic position raises the new class above the childishness of natural religion. An advantageous position in society stimulates its spiritual life. But its economic interest comes to clash with that of the priesthood.

In primitive society, the bulk of the surplus product of social labour, that is, whatever is produced over and above the barest necessities of the producers, accumulates in the possession of the priestly class in the form of offerings and sacrifices. In order to destroy that economic monopoly, the new intellectual aristocracy attacks the spiritual domination of the priesthood. The power of the priest is undermined by the liberation of natural phenomena from the control of their presiding deities. The physical explanation of nature begins. In the absence of any clear notion of a supreme being, or First Principle, the enquiry after the origin and laws of natural phenomena cannot stray into the wilderness of lofty but futile speculation. Philosophy is born, not as metaphysics, but as physical science, to culminate, after a long and chequered career, as the Science of Sciences.

Of all the countries of antique civilisation, Greece alone developed the social conditions suitable for the

birth of philosophy. In the rest of them, society remained under the spiritual leadership of the priests. Some failed to survive that state of spiritual infancy; others, sooner or later, came out of the prolonged twilight only to plunge headlong into the darkness of metaphysical speculations which dazzled deceptively as the high-road to absolute truth.

Even in Greece, the honour of being the birth-place of philosophy was reserved for the Ionian and Doric maritime colonies. The famous cities of Asia Minor and Magna Graecia (Sicily, Southern Italy and North Africa) were economically prosperous and culturally refined. They were great centres of political and mercantile activities which took their intelligent citizens on long journeys overseas and brought them in contact with foreign peoples and strange conditions. The result was the growth of an aristocracy, not only possessed of wealth and political 'power, but also of a free and enlightened conception of the world. In the seventh century B.C., the Ionian cities were the homes of the knowledge of mathematics, astronomy, physics and engineering. In the following century, Pythagoras transplanted the taste for mathematical and physical studies to the Doric cities. All the illustrious fathers of philosophy—Thales, Anaximander, Heraclitos, Anaxagoras, Democritos, Protagoras, Empedocles—were more or less materialistic in their speculations regarding the origin of things. "Every philosopher, even the most ideal, might be prosecuted as a denier of the gods; for, no one of them pictured the gods to himself as the priestly tradition prescribed."*

Materialism thus was not a perversion of the innate spirituality of man. It was a natural development of the spirit of man, freed from primitive ignorance, and unencumbered by the artificial impediments of the doctrines and dogmas of metaphysics. Ignorance and prejudice persecuted philosophy from its very birth, and eventually

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*F. A. Lange, *The History of Materialism.*

succeeded in overwhelming it. But modern science has ultimately dislodged the metaphysical usurper from the throne of philosophy, and has restored materialism to that position of dignity.

Not only had Socrates to drink the cup of poison for his impiety, but many other sages of ancient Greece were also prosecuted on the same charge. The free and liberal Athens drove the greatest of her sons, Aristotle, to the protection of Macedonian barbarism. Protagoras had to flee, and his books against the gods were burnt. Anaxagoras was arrested, but managed to escape the fatal consequence. Diogenes of Apollonia was persecuted as a denier of the gods. Even in the freer atmosphere of the Ionian cities, Thales, Democritos and others were accused of atheism, because they freed the vision of man from the mist of wonder, and transferred the study of the world from the dazzling fable-land of religion and poetic ideas to the sphere of reason and physical theories. Knowledge has, in course of time, dissipated the ignorance which persecuted philosophy, and those materialist and religious sages of antiquity are vindicated as the itruly spiritual guides of humanity.

In India also, dissatisfaction with the Vedic natural religion gave rise to the speculation about the origin of things. Those speculations are recorded rather enigmatically in the Upanishads. But in India, the speculation about the origin of nature did not start from the repudiation of the prejudices of the primitive natural religion, because it was done mostly by the Brahmins, whose very existence as the leaders of society was dependent upon the maintenance of the rituals and ceremonies of natural religion. Therefore, the evolution of thought in ancient India took the latter course of a headlong plunge into metaphysical speculation. Evidences of dissatisfaction with the Vedic natural religion can be traced in a sufficiently early period—when the Upanishads were Composed. They contain fragmentary records of that primitive spirit of enquiry into the origin of things. But

the enquiry was not the result of the rise of a non-priestly class which was opulent and therefore intellectually advanced enough for the purpose. It was mostly confined to the priestly class itself, although some Kshattriyas appear also to have participated in it. la any case, little record of the non-priestly contribution to that early enquiry has come down to us. Whatever tended towards the origin of a true philosophy, that is, to the discovery of the causes of natural phenomena in nature-itself, must have been suppressed by the Brahmins who retained the spiritual monopoly for a long time to come. In the hand of the Brahmins, the primitive inquisitiveness did not prove disruptive for old traditions. It did: not undermine the position of the priesthood. On the contrary, it constructed a speculative system which stabilised the decayed structure of the Vedic natural religion. Instead of challenging the authority of the Vedic gods,, and consequently of their ministers, the all-powerful Brahmins, the orthodox Hindu speculation of the Upanishads sought to establish its doctrines, and refute other, more philosophical, systems on the authority of the Vedas. themselves.

The Brahman of the Upanishads is a purely *a priori* assumption—an unverifiable hypothesis. That assumption regarding the origin of things categorically puts an: end to all enquiry in that direction; therefore, it renders-positive knowledge impossible; philosophy is out of the court, and priestly monopoly of ideology is perpetuated. The basic defect of ancient Indian philosophy was that the origin of nature was not sought in nature itself. The *a priori* assumption of a supernatural factor inevitably blocked the way to empiricism—the gate to positive science and true philosophy. Later on, there appeared bolder thinkers, such as Kanada, Kapila, Gautama, Brihaspati, and others who came more or less near to a mechanistic conception of nature. But even most of them could not completely liberate themselves from the prejudice of some sort of an unknown force giving the first

impulse from outside. Owing to the basic weakness, ancient Indian materialism was eventually overcome by metaphysics, and philosophy degenerated into a dogmatic theology.

There developed the elaborate form of logic which so successfully fettered human spirit to the prejudice of the ideal of releasing individual souls from the bondage of the physical existence. Brahmanical domination, completely re-established after the Epic Era, checked the "heretical", that is to say, philosophical tendencies of, the primitive enquiry recorded in the Upanishads.

The challenge to priestly supremacy had come from the warrior caste. There had not risen any other class able to bid. for the spiritual leadership of society. The annihilation of all the powerful Kshattriya clans on the fateful field of Kurukshettra concluded that early struggle of classes in favour of the Brahmins. Consequently, Vedic natural religion was re-established. Yudhistira performed *Asvamedha.* not so much to celebrate the victory of the Pandavas as to acknowledge the triumph of the Brahmins, whose monopoly over the surplus product of society was re-asserted through the pompous re-establishment of the Vedic sacrifices.

The death-bed injunction of Bhishma, the doyen of the destroyed. Kshattriya clans, clearly indicates the relation of classes. He gave victorious Yudhistira the following, significant advice regarding the position and treatment of the Brahmins: "A king, to be virtuous must give the Brahmin offerings. Such offerings are more meritorious than *Asvamedha.* The Kshattriya goes to the heaven as recompense of this virtue. Land should be given to the Brahmins and gods. It is unpardonable sin to take land away from the Brahmins; Don't punish a Brahmin even by mistake, for he is superior to all men. Fire is born of water, Kshattriya of Brahmin, and iron of stone. When iron cuts stone, fire dries water, and Kshattriya becomes the enemy of Brahmin, then, they all lose their force and are destroyed. It is the duty of the

king to punish those who claim equality with the Brahmins.'

The exhaustion of Indian antique society in consequence of the internecine wars described in the Mahabharata prevented for a long time the rise of new social forces which might contest the spiritual monopoly of the Brahmins. Subsequent speculations regarding the origin of things all bore more or less indelibly the stamp of Brahmanic prejudices. Even the Vaisheshik and Sankhya systems, the positive outcomes of Hindu speculation, were not entirely free from them. There were more revolutionary thinkers; but owing to the weakness of the social forces constituting their background, their philosophic boldness could not successfully challenge priestly supremacy, and therefore failed to wield an abiding influence over Indian thought.

The priestly domination of society, rendering real philosophy impossible, continued right up to the rise of Buddhism which represented the first open, and temporarily triumphant, revolt against Brahmanic priestcraft and its reactionary effects on Indian society. A glimpse of the picture (drawn by the hand of a non-critical eulogist) of Indian society at the time of the rise of Buddhism, reveals the cause of the "spiritual", that is to say, unphilosophical, character of the main currents of Indian thought.

"Not only had the Brahmans become an organised intellectual caste which asserted for itself the leading position in political affairs hitherto held by the Kshattriyas, but in ministering to the religious needs of the Indo-Aryan community, they had established a monopoly which lent itself to unscrupulous exactions and to the encouragement of the grossest superstitions. The ancient Vedic idea of the divine power of speech had developed into the philosophical concept of the *Mantram.* A Mantram could bring victory or defeat in wars, assure the prosperity of a State; it could be used to silence the argument of the opponent; it could stop a cough or promote the growth

of hair. There was no concern of daily life, great or small, which could not be affected by it. The Brahmanical theory of the Mantram is that it contained in itself a divine principle and the compelling power of the Deity Itself, though its use by ignorant or ill-disposed persons would be ineffectual or disastrous to himself. The influence exercised by unscrupulous or ignorant priests was bound to encourage superstition among the masses, and to become a hindrance to civilisation as well as a source of exaction and cruelty. Another instrument of tyranny and deception, placed in the hands of the Brahmans, was the Aryan belief in the divine power of sacrifice which had come down from the earliest Vedic time. In course of many centuries, the performance of sacrificial rites had grown into a fine art which Brahman experts were not slow to use for their personal advantage, for the efficacy of the sacrifice was said to depend largely upon the liberality of the indispensable *dakshina* or reward bestowed upon the officiating priest. Like the Mantram, rhe application of Vedic sacrificial rituals extended to every concern of private and public life. The purity of the divine power of the Brahman was said to be implicit in the fact that sacrificial rites were performed for his benefit. And not only did public sacrifices and the worship of tribal deities involve a vast expenditure of State revenue, but the household rites, for which the services of Brahmans were generally necessary, grew more and more numerous and complicated. There were endless sacrificial ceremonies which required the attendance of Brahman experts."*

The Hindu philosophy is, strictly speaking, theology. With the exception of the Vaisheshik and Sankhya, no other speculative system tried to explain the origin, evolution and phenomena of nature independent of an assumed supernatural agency. With such an

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*Havell, *History of Aryan Rule in India.*

assumption, speculative thought becomes theology—a. fruitless enquiry or dogmatic assertion about the nature of the super-natural spiritual being which, by its very nature, is beyond all enquiry and description. However,, Hindu philosophy offers the most classical example of the contradictions and confusion of metaphysical thought. The Gita is considered to be the most representative and authoritative work, containing the quintessence of Hindu philosophy. It contains the following remarkable passages: "There is no difference between the material and immaterial. The formless, invisible and uncreated immaterial becomes materialised in the same way as water is crystallised into ice."

"Though false as the gleam of a polished shell, or as a mirage caused by the sun's rays, yet no one at any time, past, present and future, can rid himself of the delusion" (of the world).

The most obvious contradiction is the admission of the reality of that which is declared in the same breath to be a delusion. A thing that existed in the past, exists in the present, and will exist in the future, is eternal. The eternity of the "delusion" of the world thus granted, the Brahman necessarily ceased to be what it is assumed to be, namely, "only one without a second". The very foundation of Hindu philosophy is thus blown up.

If the immaterial is really immaterial, the material can never grow out of it. Two things having nothing in common cannot stand in the relation of cause and; effect. If the material comes out of the immaterial, then the latter cannot be what it is supposed to be. It must also be material. Thus, there is but one substance in existence. The dualism is only a sophistry, a verbal contrivance to defend a useless hypothesis. Should immateriality be conceded to the origin of things, then, its very existence would be denied. For, existence, which means extension in space, is not compatible with the conception of immateriality. Water exists materially;

therefore, it can change itself into ice, another material Existence. The material phenomenon of ice could never happen, unless water existed as a material substance. Therefore, the material is the only reality, and it exists eternally. That admission is the logical inference to be drawn from the above passages. But such an admission would be highly damaging for the entire system of the Hindu metaphysical thought. It would cut across the vicious circle of metaphysics. It does not leave any room for a creator. The conception of an eternal existence dispenses even with the more elusive hypothesis of the First Principle. Therefore, the start is made from the other end, which eludes verification.

The hypothetical absolute Supreme Being, possessed of flagrantly contradictory attributes, which violate its supposed absoluteness, is assumed to be the only reality; and the undeniable reality of the material world is declared to be a "delusion"! Further, "there is no difference between the material and the immaterial." Yet, according to Hindu philosophy, true wisdom consists of the ability to distinguish between the material and the immaterial. Endless confusion, naturally, results from such arbitrary splitting of the unity of being.

The sum and substance of metaphysical speculation, particularly of the wildest Indian type, can be stated as follows, to make its absurdity evident: Proposition— the finite is not the infinite; problem—how can the finite know the infinite? Solution—the finite must become the infinite!

The Vedanta Sutras, as interpreted by Sankaracharya, represent the acme of the orthodox Hindu philosophy. Yet, the Sutras themselves have actually been differently interpreted. The *Sri Bhashya* of Ramanuja, for example, differs from the Sankar-Bhashya on a number of basic points of doctrine. The latter, an admirable work of scholastic argumentativeness and speculative extravagance, is full of self-contradictions. For instance, Sankaracharya admits: “If (there) is a

second entity, co-existing with Brahman from eternity, it follows that Brahman has a second." He saw the fallacy of this inextricable dualism which invalidates the basic theorem, "when Brahman is known, everything is known"; therefore, he tries to explain it by declaring the parallel existence identical with Brahman. But that hardly improves the situation.

Sankara is generally believed to have expounded a system of monotheism almost as perfect as Hegel's Absolute Idealism. A study of the Sankar-Bhashya, however, shows that the belief is baseless. The work begins with the following passage: "It is a matter not requiring any proof that the object and the subject, whose respective spheres are the notions of the "Thou" (non-ego) and the "Ego", and which are opposed to each other as much as darkness and the light are, cannot be identical."

No less than two major fallacies are involved in this point of departure: Firstly, the basic principle of the system is simply taken for granted, it is not proved; and secondly, an absolutely dualist conception is made the premise of a monist philosophy. Consequently, Sankara had to invent the absurdity of the *Mayavad* (which cannot be traced in the Sutras themselves) to establish the purely spiritual unity of being.

The doctrine of Maya is expounded as follows:] Brahman is associated with a certain power called[1] Maya or *Avidya,* to which the appearance of this entire world is due. This power cannot be called 'being', for being is only Brahman. Nor can it be called 'non-being' . in the strict sense, for it at any rate produces the appearance of this world. It is in fact a principle of illusion:] the undeniable cause, owing to which there seems to exist a material world. Maya thus constitutes the *Upadhana,* the material cause of the world. Maya belongs to Brahman as a Sakti. We may say that the material cause of the world is Brahman in so far as it is associated with Maya. This doctrine obviously contradicts the conception of Brahman as the unitary and absolute

existence. Brahman is devoid of all qualities. Yet, Maya is assumed to be its Sakti. Moreover, Maya is conceived as an existence parallel to Brahman. The idea of "association" presupposes two entities:, similarly, does the idea of "belonging".

The most remarkable part of the Vedantic monism is the logic with which the unity and simplicity of Brahman is established. The object of Vedanta Sutras was to systematise the Aupanishadic speculations into a homogeneous whole, and to prove that the quasi-materialistic (heretical) doctrines of Kanada, Kapila, Gautama and others, were not borne out by those speculations. The Upanishads contain speculations which cannot be reconciled in one system. For example, in the Tchandogya, Brihadaranyak and Taittiriyaka, ether or space (akasa), fire and air are visualised as existences without origin. This view cuts across the basic dogma also set forth in all the Upanishads, that in the beginning there existed the Brahman, "only one without a second", and this dogma constitutes the premise of the cardinal doctrine of Hindu philosophy, namely, "when the Brahman is known, everything is known", also propounded in the Upanishads. In the lace of this flagrant contradiction, the entire body of the Aupanishadic speculation could not logically be the basis of a system of philosophy. Unorthodox thinkers daring to challenge the authority of the Scriptures, pointed out this contradiction. They argued:! If none but Brahman exists in the beginning, then, ether, air, fire etc. have an origin; that is to say, they are created, and the hypothesis of Brahman untenable. On the other hand, if the elements are without origin, then the Brahman ceases to be what it is assumed to be—"only one without a second". If one of the views is correct, then the other is not. Thus, the infallibility of the Scriptures is shaken. Their claim to absolute authority can no longer be maintained. The monism of Vedanta, as interpreted by Sankaracharya, is reared just on this contradiction. In order to obviate any disturbance of the absoluteness

of the Brahman, the elements must be without an origin. The difficulty (of dualism or pluralism) is overcome by declaring them to be identical with Brahman.

Sankara's commentary on this Sutra is highly interesting. It gives a graphic picture of the Hindu philosophy, and outlines its curious logic. "These promissory statements (regarding the unity and exclusiveness of Brahman) are not abandoned, that is, not stultified, only if the entire aggregate of things is non-different from Brahman, the object of knowledge; for, if there were any difference, the affirmation that by the knowledge of one thing everything is known, would be contradicted thereby. Non-difference again of the two is possible only if the whole aggregate of things originates from the one Brahman. And we understand -from the words of the Veda that that affirmation can be established only through the theory of the non-difference of the material cause and its effect. ... If the ether etc. were not effects of the Brahman, they could not be known by Brahman being known, and that would involve an abandonment of a (previous) affirmation; an alternative which, as invalidating the authoritativeness of the Vedas, is of course altogether unacceptable." The logic is remarkable. If the Vedas contradict themselves, that should not be allowed; since that would affect their authoritativeness! The incontestable authority of the Scriptures is the absolute standard. Should the evidence against the infallibility of the Scriptures be found in the Scriptures themselves, that should not be admitted, because that would shake the authority of the Scriptures. The basic principle of this remarkable logic is to submit everything to the test of an unverifiable hypothesis, and to reject all evidence against the hypothesis, simply because they expose its absurdity and render it untenable. Throughout the ages, Indian speculation has been vitiated by this stultifying system of logic. It was the ideology of a stagnant social order under priestly domination.

To have found the unity in diversity, is claimed as the greatest merit of Hindu philosophy. But, as a matter of fact, the unity was not found. It was simply assumed or imagined. It is an ideal conception which brushes aside the problems to be solved. Since the rise of the material world out of the assumed immaterial root-cause is not logically possible, dualism persists defying all metaphysical verbal jugglery. From the Aupanishadic *Rishis* down to Sankaracharya, no orthodox Hindu speculative thinker was able to prove how the diversities of nature could rise from a common cause. The sheer impossibility of the task ultimately drove Indian speculation to the monumental absurdity of the *Mayavad.* Vitiated by the baffling, but obstinate problem of dualism, the speculation about the origin of the world must necessarily come back again and again to the good old conception of an anthropomorphic God, whose venerable person casts a sinister shadow on the sublime light of philosophy. Sankaracharya's laboriously constructed *Advaitavad* solved the problem of the world by the simple contrivance of declaring it to be a dream. Nevertheless, it could not get rid of a personal God. And a personal god is utterly incompatible with the philosophical conception of unity in diversity.

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The ancient Greek philosophy also could not remain strictly materialistic. Human ideology is, to a large extent, determined by the conditions of society under which it develops. Pre-Platonic Greece attained a level of social evolution where human ideology transcended the arbitrary bounds of natural religion. Speculations about 'the physical origin of things liberated human spirit from the domination of the gods. But experimental science was as yet practically unknown, empirically gained positive knowledge was practically absent.

The institution of slavery prevented the development of technology. Aristocratic contempt for manual

labour isolated theory from practice. Scientific theories are applied to practice, so necessary for the development of technology, only when it becomes necessary to increase the productivity of human labour. But so long as human beings are not differentiated from the beasts of burden, the necessity is not felt. Their labour costs so little that it is more economical to maintain a large number of slaves than to improve the technical means of production. Besides, valuable machines cannot be entrusted to the slaves who are too ignorant to use them fruitfully and, by virtue of their very social position, lack all sense of responsibility. For all these reasons, the bold conjectures of the Ionian physicists could not be verified. The magnificent mechanistic conception of the Universe was still to remain a fascinating hypothesis.

The rise of a new trading class in the countries around the Levant had disrupted the tribal social organisation, ideologically as well as economically. Previously, land had held in common, and cultivated by collective labour for the maintenance of the entire community. The appearance of trade altered the character of agriculture. Its function ceased exclusively to be the feeding of the community. Its product, in larger and larger quantity, came to be exchanged, yielding profit to those engaged in the new occupation, namely, the traders. With the object of bringing the product of agriculture completely under their control, the traders acquired the possession of land. The creation of private property in land destroyed the communistic organisation of society. Private ownership inevitably led to the concentration of land in big estates. Tribal chiefs and heads of clans became landlords or kings. Those who had previously cultivated the land as free members of the community were transformed either into tenants or slaves, toiling for the landlord, producing no longer food for the community, but commodities for exchange in distant markets. The disruption of primitive communism, the evolution of private property and the growth of trade contributed to the rise of cities, populated

by classes of people entirely divorced from the land, either by choice or under obligation. The cities were centres of trade as well as of manufacture by slave-labour. The merchant-princes therefore lived there by choice. The number of artisans, performing labour in the bondage of slavery, was swelled by the influx of toilers driven away from the country-side by the decomposition of the common ownership of land. Trade destroyed the economic self-containedness of the communistic rural social units. Goods manufactured in cities by slave-labour penetrated' there in exchange of agricultural products, and destroyed, village handicraft. Finding themselves superfluous in the village, owing to the subversion of the communistic structure of its economy, rural craftsmen also drifted to the cities. There they swelled the ranks of slaves, or enjoyed the dubious freedom of the pauperised "citizens" living upon the munificence of the merchant-princes who had ruined and transformed them into social parasites.

The economic dislocation of society and its structural redistribution brought about a parallel process of confusion and recasting of ideology. The idea of a life after death was absent in the primitive communistic society. Man had no individual existence apart from, and outside or independent of, the tribal organisation with which he completely identified himself. While alive, he was an integral part of the community; after death, his individual being was merged in the collective existence. He continued living in the life of the community. The institution of ancestor worship evolved in that state of primitive culture. Assured that even after death the community would take care of him, the member of the primitive communistic society was not bothered by the problem of life after death. As a matter of fact, death appeared to him very much like a prolonged state of sleep. In that state of primitive bliss, the speculative thought of man was concerned with the external nature with which he was in constant struggle, and whose diverse phenomena were wonders for him. He was impressed by the regularity of

natural phenomena; he also found them to be benevolent or stern or cruel. Yet, far from the state of metaphysical absurdity, he could not conceive of things acting without a cause. By nature, man is not "spiritual", but rational. Extensive observation of the primitive peoples still living in various parts of the world, and critical study of history, have conclusively established that the idea of soul, god or some mystic essence of nature evolves at a comparatively late stage of civilisation. In the beginning, man assumes that there must be a tangible cause for each natural phenomenon. Since his thought is limited by his own being, he imagines the phenomena of nature as actions of corporeal beings like himself; only he visualises those beings immensely more powerful because of the immensity of their deeds. The recognition of superiority carries with it the feeling of admiration or fear. Just as superiors on this earth can be adored by devotion or placated by offerings, just so was the attitude towards the unseen celestial beings. Thus men created gods after their own image.

No religion was born in a day—revealed to a particular prophet. The doctrines and dogmas of each religion crystallise themselves in a process over a whole period of history. It is a period of social transformation. The change in the conditions of material life brings about a corresponding readjustment of ideal standards, although these are considered to be precedent to, and independent of, the mundane world. The disruption of old social relations shakes the basis of a particular form of faith. Man's relation to God or gods, as the case may be, is determined by the relations among men themselves. Natural religion, as for example of the Vedas, or of the Greek mythology, is the deification of the diverse phenomena of nature as objects of worship. It is the religion of the decentralised tribal society. Monotheism, the belief in one God, rises as the ideology of a centralised State. The worship of a glittering galaxy of gods, all equally powerful idealised human beings, is the spiritual

expression, of man living in die state of primitive democracy. The idea of one God, or a Super-God, becomes a social necessity as a spiritual sanction for the monarchic State rising on the ruins of tribal freedom. An over-lord in heaven is postulated as the sanction for an over-lord on earth.

The development of the religion of a particular group of human beings from polytheism to monotheism-is influenced by the intensity of the social crisis under which it takes place, and of the maturity of the forces of further progress. Either there is a complete break with the past and monotheistic faith gains ground as the mighty lever to revolutionise social relations; or the conception of a sort of Super-God grows out of the background of polytheism, as a compromise between the old and the new. The latter development represents a continuation, of the social crisis, the urge for progress being too weak and halting to clear away the decayed old.

Vedantic monotheism—that of the Upanishads—did not replace, the older form of faith. Instead, it rationalised primitive polytheism. The reason for such an involved process is to be found in the relation of social classes, which constituted its background. The new monotheistic doctrine was not sponsored by a new class with a. spiritual outlook free from tradition. It did not appear as a standard-bearer of revolt against the established rites and rituals which fortified the dominating social, position of the priestly class. The dissatisfaction with the old faith was voiced mostly by individual members of the priestly class, and remained confined to them. Naturally, their dissatisfaction could not and did not go to the extent of advocating complete abolition of a form of popular worship which had placed their class at the head of society. The monotheism preached by them was not a new popular faith. It was a mystic cult which largely remained a monopoly of the priesthood, and consequently reinforced their social position. The new cult did not condemn the old faith, on the contrary,

recommended it as the religion suitable for the vulgar. An airy structure of mystic monotheism was thus reared upon the foundation of decayed natural religion. The new faith was not the result, of a striving to free the individual from the bondage of the tribal society. It fortified the position of the anthropomorphic gods by placing them in a Pantheom, the inner mysteries of which were accessible only to the Brahmans. The Hindu brand of monotheism, strictly speaking, is pantheism. It is the ideology of an unsolved social crisis—of social stagnation.

The absence of a strictly monotheistic cult in religion reflected the political disunity of India. The social forces favouring the establishment of a centralised State having failed to attain a sufficiently high level of development, the growth of a strictly monotheistic faith was an impossibility. The first centralised State in the history of ancient India was the Empire of Asoka, and that happened under the revolutionary banner of Buddhism. That also disintegrated, revealing the lack of an abiding social cohesion. The subsequent Empires of Chandragupta and Harshavardhan were more transient political phenomena. The outstanding feature of the political history of ancient and mediaeval India is the absence of a centralised 'State. The obvious reason of that characteristic feature was the inadequacy of economic conditions and weakness of the social forces associated therewith. The occasional subjugation of the entire country, or of a considerable part thereof, in great Empires was not an organic growth; it was an artificial creation as was testified by their quick disintegration. Even those Empires were not centralised States. Their structure was that of a loose federation. So long as the country remained broken up into more or less self-contained village communities, forming here and there isolated economic regions, a centralised State was an impossibility. The condition of political union would be the disruption of self-contained local economy which could happen only in consequence of the rise of new modes of production. That condition developed

very slowly, owing to the insufficient margin of social balance—itself a result of the primitive mode of production necessarily associated with self-contained village economy. Hence, India never experienced political unity and did not develop a strictly monotheistic religion.

Christian monotheism triumphed as the ideology of a whole period of human progress, because it rose out of a background of complete social dissolution, advocating the establishment of new social relations to be governed by revealed spiritual standards.

Circumscribed by social conditions, ancient philosophy could develop thus far and no farther. That, however, does not minimise the importance of the progress made; and its influence on future development could not be any the less. Even in its inevitable metaphysical deviations, Greek philosophy did not; altogether leave the solid ground of materialism. The metaphysical deviation was inevitable in the conditions of the time. Freed from the childish faith of natural religion, thinking minds were eagerly searching for an explanation of things, for a common origin of the diverse appearances. Owing to the difficulties of verification, the conjectures and hypotheses about a purely materialist origin of things could not be generally convincing.

Then, there intervened a new factor which decisively influenced the direction of thought. The growing disbelief in the gods of natural religion had destroyed the old standards of morality. New standards of social and political relations must be found. The conception of a First Principle and Absolute Truth thus became a social necessity. Goodness and badness, equity or otherwise, of terrestrial things—political institutions and social relations should be judged not on their own merit, but in comparison with an imaginary perfection. The problem of social relations diverted the mind of man from the speculations about the cause of the natural phenomena; ethical problems overshadowed physical enquiry.

Pythagoras and Anaxagoras represent the transition* of Greek philosophy from primitive materialism to meta» physics and ethics. The position of the latter, who. eventually became the source of inspiration of eighteenth, century rationalism, is highly interesting. Anaxagoras remained enough of a materialist to teach that knowledge could be derived only through the senses; but at the same time, he declared sense knowledge to be delusive. He reconciled this contradiction with the doctrine that reason was the regulating faculty of the mind which, was nothing but the sum total of sense-perceptions. Thus a new divinity was invented to dictate the conscience and conduct of man. But what is this mysterious entity Reason? How can its judgment be infallible? Reason itself is nothing but an abstraction of knowledge-previously acquired through sense-perception. Not being able to analyse reason (which could be done only with the aid of the advanced knowledge of physiology),. Anaxagoras left the firm ground of materialism, and drifted on the shifty sands of idealism. The concept of reason, as an independent category, obliged him to tabe-another step still farther away from his original position. He postulated a Universal Intelligence to explain the-infallibility of reason.

The doubt about the reliability of knowledge, acquired through the senses, had been much more rationially and effectively dispelled by the old materialist Heraclitos who declared that "senses fail only the-barbarian soul; rightly educated senses gave true knowledge." But the conditions for the right education of senses were not yet there. Owing to the backwardness, of technology, exact knowledge of things could not be had as yet.

The setting up of some abstract standard of truths however, was not an empty metaphysical declaration. It was the ideological reflex of the striving for the creation of a centralised State. The aristocracy, striving for supreme power over the democratic communities, needed

an authority for their pretension. An absolute principle governing the Universe supplied a very plausible authority for a centralised, all-powerful State on earth. The nature is so harmonious, because it is governed by the principle of absolute wisdom, truth and perfection. To be harmonious and happy, human society should also be guided by wisdom and truth. But there are but a few wise, truthful and perfect men in this world. The government of society, therefore, should be entrusted to those few hands. The State could not exist without a wise ruler, just as a ship could not do without an experienced pilot.

With this anti-democratic philosophy, Athens became the centre of the political as well as the cultural world of the Greeks. But the Sceptics and Sophists Vented democratic resistance to this philosophy of political absolutism. Both the schools drew inspiration from the teachings of the earlier materialist philosophers. By deposing the gods from their thrones, the physical conception of the origin of things had promoted scepticism as regards religion. The haziness of the quasi-materialist speculations which resulted from the then impossibility of demonstrating the correctness of the mechanistic hypothesis, contributed to the spread of scepticism to the entire realm of enquiry for knowledge.

The founder of the sceptical Eleatic school, Xenophanes, on the one hand ridiculed the poetical polytheism of Homer, and attacked, on the other, the growing custom of keeping knowledge confined to a small circle of the elite. Following fruitlessly the speculative path in the search for a satisfactory knowledge of things, he came to the conclusion that nothing can be known for certainty. The pretension of those, who claim to know the way to perfect wisdom and absolute truth, was thus challenged. Scepticism was the ideology of the democratic middle-class which desired to overthrow the domination of the priesthood, on the one hand, and to

combat, on the other, the growing supremacy of the aristocracy. But it was a purely negative factor. It pulled down the moral authority of all the established institutions, but was not able to replace it with a new standard. It was the ideology of the impending dissolution of the antique society. It could not be successfully combatted by the moral philosophy of Socrates. A new religion—revealed monotheism—was the effective antidote to the disease. Plato's idealism heralded the rise of the new religion.

Ever since the fall of ancient materialism, neither speculative philosophy nor religion nor theology was able to answer the old question about the why and how of things. The first half of the question itself is absurd, and any attempt to answer it will be necessarily also absurd. The other part of the question is pertinent, and materialism alone can give a satisfactory answer to it. The answer given by speculative philosophy, religion and theology, is that things are so simply because they are made so by an arbitrary creator or an inscrutable First Cause. The logical conclusion of this "philosophy" is that man, as a mortal, with limited capacities, can never know anything; he is doomed to eternal ignorance so that nature may always remain an impenetrable mystery to veil a hypothesis which cannot stand the test of knowledge. Man's only consolation is to contemplate an enigma that will always be beyond his comprehension.

Scepticism was a protest against this monstrous madness raised to the dignity of wisdom. But the well-warranted protest of the Sceptics was futile, since the weapon which alone could cut the Gordian knot, though roughly cast, was still to be perfected. It was with the potent weapon of materialism, so ingeniously sketched by the philosophers of ancient Greece, that European spiritual life eventually took up the effective struggle against the monstrous sentence of eternal ignorance.

While scepticism encouraged a healthy critical attitude and disregard for absolute authorities, the Sophist philosophy was the immediate positive outcome of anique materialism. Instead of declaring, like the Sceptics, the attainment of knowledge to be an impossibility, the Sophists recognised the reality of knowledge. The founder of Sophism, Protagoras, was a pupil of the materialist Democritos. He held that the cause of all phenomena was in the common substratum of matter. From that materialistic general proposition, he inferred ihat everything is true relatively. Men have different perceptions at different times, according to the changes in the objects perceived. Therefore, every sensation is a true sensation. This was a refutation of the dogma of eternal truth and absolute knowledge.

Speculative philosophy was driven to a tight corner. The philosophical triumph of Sophism would mean a social revolution. According to the Sophists, nothing was wrong or right by nature; there were no fixed standards. So, neither the current codes of law and morality, nor the established political institutions could be immune from subversion. They were all conventions, set up by the necessity of circumstances, and therefore must disappear with the change of circumstances, to give place to new codes of law and morality and new political institutions. That revolutionary, dynamic view of things was very dangerous to the established order of society. The Athenian aristocracy combatted the revolution with a gigantic philosophical reaction, associated with the venerable names of Socrates and Plato.

Until the great social crisis, revealed by the spread of Sophism, philosophy had been apparently detached from the questions of daily life. It was occupied in the search for a solution of the grand problem of the Cosmos. Notwithstanding its speculative deviations, it was based upon a rudimentary, largely hypothetical, and often mistaken, scientific study—of astronomy, mathematics, physics and mechanics. Socrates made ethics

the only concern of philosophy, and his pupil Plato completely pushed aside the scientific enquiry of earlier thinkers in favour of metaphysical speculation.

The Sceptic doctrine of the uncertainty of all knowledge and the Sophist view of the relativity of truth,-destroyed all old standards. Socrates rather demagogically than boldly met the Sceptics on their own ground, and inferred from their doctrine that "the gods did not wish men to penetrate their secrets." He argued that therefore man should seek certainty where he could find it,—in his own consciousness. He advised men to be concerned with themselves, and leave things divine (that is, the problems of the Universe) to the gods. For proposing this unphilosophical, but none the less irreligious, division of labour between man and god, the Athenian sage had to put on the crown of martyrdom. But only in that primitive rationalism could he find a weapon to fight the more powerful disrupters of the established order, namely, the Sophists. They denied any external fixed criterion of truth; Socrates retorted that it was in man himself, an integral part of his being. He held that all men could be just, because justice resided in their consciousness; they could be good and wise, because goodness and wisdom were similarly innate in themselves. Subjective and, therefore necessarily variable, conceptions of justice, wisdom, goodness, virtue etc. were thus raised to the status of objective realities, fixed standards of truth.

Having postulated that the eternal truth, the fixed standard of knowledge, resided in the consciousness of man, Socrates set about to explain how the light could shine so as to show everybody the right way of life. Men's minds were full of "incoherent and unscientific notions," that is, variable ideological standards growing out of changing objective conditions. Socrates taught that those notions should be cleared away, and "scientific notions", that is, absolute criteria, should take their place. Then, the divine light in man would shine brilliantly.

He argued that all men agreed that wickedness should be punished. But confusion would be inevitable unless there was a generally accepted idea of wickedness. Therefore, true knowledge was conditional upon correct 'definition of terms, and definition was the statement of the objective characters of general terms. That method was applied to all the questions raised by the Sophists, namely, what is justice? What is virtue? What is morality? What is law? so on and so forth.

Thus began the search for an absolute objective reality in subjective conceptions which, by their very nature, are necessarily changeable. The conscience of man should be the standard for the correctness of definitions. Apparently, this basic dogma of the moral philosophy of Socrates comes very near to the fundamental maxim of Sophism: "Man is the measure of all things." But in reality, there is a world of difference. The "man" of the Sophist is not an abstract conception, ibut a concrete phenomenon, always changeable under varying circumstances; with Socrates, conscience is an absolute standard. According to him, justice, goodness, virtue etc., are not variable abstractions from concrete individual phenomena, considered, under a given set of conditions, to be just, good, virtuous, etc. They are absolute categories, innate in man's consciousness, independent of all changes of the circumstances in which the man lives. All acts of man that might measure up to these arbitrarily fixed absolute notions, as it were sucked out of the thumb, should be considered just, good, wise, virtuous etc.

A completely new chapter in the history of philosophy was opened. Introspective speculation replaced physical and cosmological conjectures. Ethics and metaphysics gained precedence over science and enquiry into the origin of things. Owing to the admitted failure to reach any certainty, knowledge had come to be discredited. Wisdom became the noble ideal of man; and anything enigmatical came to be known as wise.

The memorable reaction in the intellectual development of mankind (though inevitable in the objective conditions of the epoch, it was nevertheless a reaction) is depicted as follows by a philosophical historian: "Socrates turned the subject matter of discussion from physics to ethics. General and abstract terms and their meaning stood out as the capital problems of philosophical research, and the governing agents of the mind during the process; in Plato and Aristotle, we find the meaning or concept corresponding to these terms, invested with an objective character, and represented as a cause or beginning, by which or out of which real concrete things were produced. Logical, metaphysical, ethical entities, whose existence consists in being named and reasoned about, are presented to us as the real antecedents and producers of the sensible Kosmos and its contents, or as eternal with the Kosmos, but as its underlying constituents—the primordia or ultima—into which it was the purpose of the philosopher to reduce sensible things."*

Previously, philosophy had endeavoured to explain nature as satisfactorily as possible under the conditions of the epoch. Socrates deprecated such speculations as futile. In his hand, philosophy herself changed her native character and turned her face to the opposite direction. Socrates held that science could not be taught; that is, knowledge was not to be acquired empirically. It could only be drawn out of one's own self. Man should search not for the knowledge of things, but for intuitive wisdom—in his own being. Man should abandon the ambition of knowing, and glorify the fantasies of his ignorance as intuitive wisdom—the infallible guide in a world never to be known. From an infinitesimal particle in the grand cosmic mechanism, man became a being, raised above nature whose laws were to submit themselves to his impertinent ego. The noble liberatrice of

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*Grote, *History of Greece.*

human spirit was thus prostituted by the petty egocentrism of the pedantic moralist.

But moral philosophy cannot stand by itself. In order to be an unfailing guide for the conduct of man, his conscience should cease to be the property of a terrestrial being, and take on the character of a spark of a self-illuminated and all-illuminating celestial light. In other words, an arbitrarily set up earthly standard could not claim infallibility except with the sanction of an absolute principle, force or being, which knows no law. Plato provided the moral philosophy of Socrates with this prop. He affirmed the possibility of attaining absolute truth through "the confidence in the truth of universal propositions", that is, absolute ideas. In support of this new dogma, he made the following metaphysical, non-verifiable, assertions:

"Propositions are equivalent to the natures they affirm; therefore, those (propositions) which relate only to Essences (of things) and Ideas are indisputable (truths); those which relate to the world of senses, dealing only with copies of Ideas, are less and less trustworthy in proportion to their sensuous nature; they are, at best, only probabilities, whereas universal propositions are primary truths, seen to be such by intuition."

Philosophy was thus shifted from the ground of enquiry into the nature and origin of things to the realm of mere mental gymnastics. The examination of objectively existing things was abandoned for the contemplation of subjectively conceived ideas which were dogmatically endowed with objective reality, and things were declared to be mere shadows. The source of all knowledge was "conversation with one's own soul", and true knowledge could be derived only from such esoteric communion, because individual souls were parts of the omniscient Universal Soul.

Not only was the foundation of Idealism laid, but the way was open for the return of religion on the ruins of which philosophy had risen originally. The anthro-

pomorphic gods of the decayed natural religion were replaced by more ethereal entities, Absolute Ideas, to tyrannise human spirit all the more effectively. Plato is the real father of Christian theology, and the misunderstood and misinterpreted Aristotelian metaphysics, together with Christian theology, throttled philosophy for nearly two thousand years, until the birth of modern science provided materialism with the necessary weapon in the struggle for the spiritual liberation of man.

Even the very father of Metaphysics, Aristotle, stood with one foot on the solid ground of materialism. A disciple of Plato, he nevertheless rejected the poetical extravagances of the Master, and endeavoured to place speculative philosophy on a plausible foundation of reality. He preferred the analysis of the world as it existed to the flight in empty abstractions. He held that the general law could be discovered only through the examination of particular facts. Plato had declared that knowledge acquired through senses was deceptive. Aristotle discarded that view which cut at the root of philosophy, and maintained that without sensation there could be no thought; that the knowledge of particular could be gained only through the senses; and that from the knowledge of particulars, by induction, the knowledge of the Universe was attained. Aristotle criticised the Platonic speculators with the following materialistic arguments:

"Their thoughts are not directed towards the phenomena and the discovery of their causes. They endeavour to make the phenomena correspond with their opinion. Treating of the phenomena, these philosophers say things which by no means correspond with the phenomena; the cause of this is that they have not rightly conceived first principles, but reduced everything to certain preconceived notions, and they persist in this false philosophy) in spite of all contradictions, as if they were in possession of true principles, as if these ought not rather to be deduced from the phenomena."

Aristotle shatters the very foundation of idealism 4»y denying the objective existence of ideas. He holds .that ideas exist only subjectively, being the product of .season which abstracts the general law from the particular phenomena perceived by senses. He traced not «nly the inanimate nature to a material origin, but even visualised a spontaneous generation of the vital phenomena out of the same material substance. He was of the opinion that living beings—animals and plants—grew out of matter through "its own original force". To substantiate this view, he pointed out for example the breeding of moths from rotten wood, of flees from decomposed dung, of lice from damp wool etc.

Thus, the father of metaphysics himself avoided the unphilosophical dualism of mind and matter, which eventually became the foundation of metaphysics. Aristotle understood that there could be no philosophy except on the basis of the recognition of the reality of natural phenomena. But in the conditions of his time, he also could not put his empiricism into practice. In the absence of the technological means for "educating the senses", so that they could acquire exact knowledge

•of particulars, the balance inclined on the side of the Universals which were conceived as the categories of pure logic. In the beginning, so very clearly coloured with .materialism, the system of Aristotle, however, is vitiated by the confusion regarding the function of Logic. With .him, logic was not merely an instrument of thought; it was also an instrument for the examination of external things. He understood that true knowledge could be acquired only through the perception of things as they exist; yet, he tried to gain the perception rather through contemplation than from an actual examination of the concrete. In the absence of material possibilities, to acquire exact knowledge of things, and of their relations, empirically, hastily formed ideas pushed the objects to a secondary place, and ideas assumed the character of independently existing objects of investigation. And logic

becomes the instrument. In this form, philosophy inevitably degenerates into formalism and wild speculations.

From the proposition that all knowledge was based on some previous knowledge, Aristotle concluded that universal conception was the standard of truth. Crassly contradicting his own empiricism, he laid down:; "Sensations are less trustworthy than ideas." So, the, Platonic dream of an objectively existing absolute idea was smuggled in through the backdoor as the pivot of Aristotle's metaphysics. Beginning empirically, Aristotle's system degenerates into speculation. His physics becomes metaphysics. This transformation takes place so unreasonably that even a sympathetic critic is bewildered by the somersault of the "Universal Mind" and remarks: "He seems so cautious and judicious when indicating the first steps, that we are surprised to find him suddenly on the other side, with no bridge visible over which he could have passed."*

Bridge or no bridge, Aristotle did cross the Rubicon. He had not rejected Plato's "Absolute Idea". He simply did not think that such a thing, as it were hanging in the air, could be the dependable basis of a metaphysical system which was to combat and replace old materialism; which could convince the Sceptics and silence the Sophists.

Socratic ethics was too pedantic to be practical. Platonic idealism was too obtuse to carry general conviction. Trained in the sound school of materialism, the Greek mind was too scientific and rational to be so easily stampeded. Antique democracy was a thing of the past; but its traditions still swayed the popular mind. Under those conditions, an abrupt break with materialism would only discredit philosophy. The system of Aristotle represents the transition. Empiricism and speculation, physics and metaphysics, are placed side by side—to be

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*Lewes, *History of Philosophy.*

fitted into a causal chain. But being mutually exclusive, they can never stand in the relation of cause and effect. Hence, Aristotle's system must reach a point of abrupt break with materialism.

The break takes place where Aristotle abandons empirical enquiry for logical contemplation. He maintains that "the general principles are known by themselves, whereas knowledge of particulars, through which the general principles are reached, is only known to us." With this fallacious argument, he establishes the dogma of "the germ of knowledge with which the soul is born"' —a dogma which has been the stumbling block of philosophy throughout ages, up to Kant. It was finally destroyed by modern ^biological discoveries. The theory of evolution has proved conclusively that innate ideas or instincts or intuitions or the *"a priori* elements of human knowledge" are also results of experience previously gained through the senses. Aristotle himself visualised this possibility, but was driven into the vicious circle of metaphysical speculations under the pressure of social and historical forces which influence the character of philosophy.

Ancient philosophy had visualised the Universe as in an eternal process of change. Neither materially nor spiritually can mankind keep standing at one place, abide by eternal principles—except that of change. A perspective of continuous progress was opened before humanity by ancient philosophy. But in course of time it was felt that there must be a fixed standard of truth so that the ruling class might be armed with a moral authority to combat, on the one hand, the tendencies of social dissolution, and to curb, on the other, the pretensions of a revolutionary democracy.

Aristotle established the standard with the aid of formal logic, which replaced the ancient dialectics, and for centuries cramped human mind into artificially conceived categorical notions. Formal logic gave birth to the doctrine—"It is impossible for the same thing to be

and not to be"—on which the elaborate structure of metaphysics and theology was raised to overshadow throughout the middle-ages the fire of human knowledge kindled in the antiquity. By this logic, all the basic dogmas of metaphysics and theology were set up negatively, because they could not be proved positively.* If a thing, rather a conception or notion, is proved not to be this or that, then, it must be admitted to be something else. The hypothesis of Absolute Idea or First Principle or God is "proved" by this logic. But this is no longer philosophy. It has been correctly observed that mediaeval thought is only theology and logic, but there is no trace of philosophy in it.†

Scepticism, promoted by the dissolution of the antique society, drove speculative philosophy to seek the shelter of faith,—this time not in the gods of natural religion, but in the new dogma of Revelation. The positive outcome of Aristotle's metaphysics was to lay the philosophical foundation of Christian monotheism.

Individualism, in the sense of the emancipation of man from the tutelage of imaginary gods as well as from the tribal patriarchal sacerdotal social relations, was the philosophy of Greece in the days of her glory. The striving for the freedom of the individual reached the high-water mark in Sophism. Socrates, Plato and Aristotle unsuccessfully combatted the Sophists. The rise of moral philosophy and its necessary evolution into Platonic idealism and Aristotelian metaphysics were the spiritual

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*The Hindu doctrine of *Neti Neti* is a notorious application of the method of negative proof. You start from a preconceived notion (of Brahman) which is endowed with super-natural attributes. Then, you compare things perceived by the senses with the imaginary, unverifiable, entity. Since none of the really existing things can measure up with the imaginary ideal, this is "proved" to be something above, beyond and independent of, the phenomenal world.

†Prantle, *History of Logic*.

reflex of a socio-political reaction—the attack of the "Tyrants" and the Spartan aristocracy upon the Athenian democracy. Poisoned to the core by the institution of slavery, antique society was however doomed to dissolution. Neither a democratic nor an aristocratic nor again a despotic State could save it from the inevitable fate. Although Sophist individualism philosophically implied abolition of slavery, the Athenian democracy was not in a position to do so in practice. Consequently, the struggle which eventually caused the downfall of the antique society, was only for the control of the State based upon the social relation of slavery. Such a State could be stable only on the foundation of an authority which laid down laws, itself being beyond laws.

Plato and Aristotle constructed the ideology of such, an absolute State, but the ideal could be realised not in Greece, but on the ruins of the Hellenic freedom. The great founders of speculative philosophy which dominated the civilised world for nearly two thousand years, were the heralds, politically, of the Roman Empire, spiritually, of the Christian Church, and socially, of feudalism. European humanity eventually began the struggle to-break the chains forged by Platonic idealism and Aristotelian metaphysics only when the materialist and individualist philosophy, combatted by those sages of Greece, re-asserted itself.

Sophist individualism succumbed not so much before the attack of Platonic reaction, as under its own contradiction, growing out of the social conditions of the time. Indeed, Sophism was the bridge over which ancient philosophy passed from materialism to metaphysics.

Protagoras was the first to replace the object—external nature—by the subject—man, as the starting point of philosophy. His position was analogous to that of the eighteenth century sensationalism (Locke, Condillac etc.) which was the common starting point both of modern idealism and materialism. Protagoras stood in the same relation to Plato as Locke later on to Berkeley.

As soon as sense-perceptions are declared to be the *only* sources of knowledge given to man, the certainty regarding the nature of the external object can no longer be asserted, because there is no certainty that our perceptions are true representatives of the external things; and this uncertainty inevitably leads to the denial of the objective existence of external nature. The Sophists stood on this slippery ground. Their enthusiasm' to emancipate the individual from all bondage lured them away from the safe base of strict materialism. For Demo-critos, the atom was the "thing in itself". His disciple Protagoras, however, regarded matter as something undetermined because it was in a process of continuous change. He was eager to free the individual from all bondage, even of the materialist determinism. But the rejection of, or disregard for the law of causality inherent in nature, logically leads one to the quick-sand of metaphysics; nay, indeed, to the morass of Faith. If the natural phenomena are not determined by the laws inherent in nature itself, then, they must be produced and governed by some supernatural force, or even by anthromorphic gods.

Thus, by its own implications, Sophism played into the hands of its opponents. Socrates himself began as a Sophist, and opened his attack upon Sophism with the weapon forged by its own contradictions. The social background of slavery drove the Athenian democracy into such an ideological vicious circle. The revolutionary significance of Sophist individualism was vitiated by the exclusion of the producing multitude from democratic freedom. The slavery of the multitude, on whose labour society subsisted, required an ideological justification, and that would naturally be incompatible with a constructive individualism. The bondage of slavery, tacitly retained, impelled Sophist individualism to deviate either towards idealism or Scepticism. The sensationalism of the Sophists, by implication at any rate, justified slavery, and therefore could not possibly be the

ideology of a new social order. The indeterminism of Protagoras meant that things have no significance except in their mutual relations. Applied to social relations of his day, this apparently materialistic principle turned out to be a justification of slavery. The institution of slavery was of no consequence. It was good or bad, beneficial or harmful, according to its relation with other classes of society. If it was bad and harmful under an aristocratic or despotic State, it could be good and beneficial when the State would be democratic. The denial of causal relation in nature was parallel to the disregard for the fact that the social phenomenon of slavery also had a cause, and therefore could not be different under a democratic State, so long as that cause remained in operation. Indeterminism in philosophy, moreover, was a result of the inability to detect the causal relation between social and political phenomena and, conversely, led to the failure to understand that slavery as the means of production must necessarily produce a specific type of State which could never be really democratic.

One of the cardinal principles of materialism also is that sense-perception is the foundation of all knowledge. The implication of this principle is the denial of innate ideas. Consciousness does not exist independently of outside things. But when it is asserted, as was done by Sophism, and more clearly by modern sensationalism, that we have only our *own perceptions* of things, the firm ground of materialism is abandoned. For, the starting point of materialism is the acceptance of the objective reality of things. The relation between the perception of a thing and the thing itself has been for ages the bone of contention of speculative philosophy. The development of natural sciences has put an end to that idle disputation. None claiming any scientific knowledge would to-day doubt that our conception of a tree corresponds with the tree itself. Any such doubt has been dispelled since man began to get acquainted with nature through his activities. When a thing reproduced by man, accord-

ing to his perceptions, corresponds with the original object of his perception, there can no longer be any possible doubt about the objective reality of things and the correctness of our perception of them. The foolish dispute persisted so long as man tried to know nature only through passive contemplation. Once the taste of the pudding has been ascertained by the simple but convincing method of eating it, there can no longer be any doubt about it.

The doctrine that we have only our own perception of things must lead either to idealism or Scepticism. In order to establish its basic principle of the relativity of knowledge, as opposed to the dogma of Absolute Truth, namely, "man is the measure of all things", Sophism exaggerated the value of sensation at the cost of the objective world. The subjective factor of consciousness overshadowed the objective existence of things, so that the latter was to recede in the realm of doubt, or even forfeit its reality. Sensationalism made of Sophism only a prelude to the Platonic doctrine of Universals and to Aristotle's "Formalism". Things do not exist independent of thought; they are the incorporation of Ideas as Plato held; and Aristotle put the same doctrine in a different way: Forms precede matter, the latter becoming concrete particular by fitting itself into the corresponding form. There are not only abstract ideas of goodness, justice etc., but also, for example, of "horseness", "tree-ness", "stoneness" so on and so forth. The unknown and undetermined matter becomes the concrete phenomena of a horse, tree, etc., by incorporating the ideas of "horseness", "treeness", etc.

Thus, thanks to its unconscious idealistic deviation, Sophism prepared the ground for metaphysics. Its negation was born in its own womb. Originally a Sophist, Socrates ushered in the philosophical reaction against Sophist individualism. Athenian democracy was defeated; with it also ended Greek freedom. Unable to face squarely the cardinal social problem of slavery, Sophist indivi-

dualism lost its revolutionary implication and degenerated into the ideology of social dissolution. The new philosophy justified slavery as a "natural" thing, and thus became the ideology of social reconstruction; but that precarious process could take place only at the expense of political freedom. The fathers of "spiritualism" were not content only with providing the ideology of political reaction. They actively participated in the destruction of Greek democracy and liberty. Leading disciples of the saintly Socrates secretly aided the Spartan aristocracy in the struggle against Athenian democracy. The godly Plato sought favour in the courts of "Tyrants" —those destroyers of antique freedom. Aristocratic Sparta was the ideal of his "Republic". Aristotle placed himself at the services of the Macedonian Philip, who subjugated Greece to a foreign rule.

While preparing the ground for the Roman State and the Christian Church, the ideological reaction, immediately, stimulated Scepticism which was also inherent in the Sophist philosophy. Traditional Greek rationalism, with its roots struck deep in a materialist and mechanistic conception of the Universe, could not be easily satisfied with the poetry of Platonic Idealism or with the formality of Aristotle's Logic. If the immediately given perception of senses did not supply them with correct pictures of external things, how could the knowledge of anything be ever possible? Social disintegration placed the stamp of boundless individualism and pessimism upon philosophy. Indeed, philosophy itself appeared to be irreparably discredited. In order to save itself from the disgraceful end, philosophy again came down from the ethereal regions—and sought for a footing m the world of realities. Materialism re-asserted itself.

Three currents of thought flowed out of the social crisis. The first, represented by the Alexandrian school, appeared to abandon philosophy and concentrated itself on the cultivation of experimental sciences; but in doing so, it rendered the most valuable service to the eventual

resurrection of philosophy. The other two currents were represented by the Stoics and the Epicureans. Both these schools rejected the metaphysical speculation of Plato and Aristotle, and sought inspiration in the older materialist tradition. The Stoics started from the quasi-mystic Heraclitan cosmological conception, because it provided a plausible basis for their politico-moral doctrine, having for its object the curbing of individualism in the benefit of the general. The altruistic, moral and republican politics of the Stoics were adopted by the early Christians. Their materialistic determinism consequently degenerated into teleology. Nevertheless, the Stoic philosophy was essentially pantheistic; as such, it destroyed the dualist conception of the Universe, and could be distinguished from materialism only by a very thin and often imperceptible line. Later on, with Spinoza and Hegel, the greatest of modern philosophers, Idealism drowned itself in the ocean of pantheism which, in its turn, merged into scientific materialism.

The metaphysical speculations of Plato provided Christianity with a philosophical foundation, not only plausible, but veritably profound. The sage of Athens completely abandoned the rationalist methods of ancient Greek thought, and plunged headlong into a contemplation of the First Cause of things, which was supposed to exist without being material. The consequence was that Platonic Idealism postulated a hierarchy of the First Cause, Self-Generating Will and the Universal Soul, which subsequently became the triple pillars of Christian theology.

The Twelve Tables of the Decemvirs, which laid the foundation of the Roman civil society, did not claim any divine authority. Those primitive laws "were dictated by the jealous spirit of an aristocracy which had yielded •with reluctance to the just demands of the people" (Gibbon, *Decline and fall of the Roman Empire).* Nor did Draco, Solon and Lycurgus, in Greece, support their legislation on the authority of any supreme deity. Four or

Five hundred years passed before Roman jurisprudence sought for any unitary divine sanction. Monotheism was still unknown. The speculations of Plato and the Stoics about the First Cause of the Universe, and the metaphysical logic •of Aristotle eventually helped the invention of the divine sanction for the laws of a civil society.

Cierco as well as his illustrious friend and patron Tully praised the worldly wisdom contained in the Twelve Tables of the Decemvir.* Yet it was Cicerco who Pitched Roman polity to the vague notion of a Supreme Being, borrowed from the Platonic and Stoic philosophy; and Cicero was the ideological pioneer of the universal monarchy of Rome, eventually established by Augustus. Demagogically deriding Greek philosophy, comparing it to the ungodly wisdom of the Roman Decemvirs, Cicero, nevertheless, sketched the ideal constitution of the Roman State on the model of Plato's Republic. In his treatise on law, Cicero seeks to trace the wisdom and justice of the Roman Constitution to some celestial origin.

The corrupting system of slavery could no longer be justified as a matter of fact social institution, as had been done by the Greek philosophers. The Patrician rule, which had abolished all the rights and liberties of the Roman citizen, could no longer stand on its own merit. Monarchist usurpation prepared by the Caesars required some authority, more imposing than the fiction of election .and delegated power. The incipient idea of Universal State, an idea born of the ambition of endless conquest, appeared to be more plausible in the light of the specious doctrine that the Roman Empire was but the terrestrial form of a celestial unity. According to Cicero, the whole Universe is one immense commonwealth—of gods and men, both the species being of the self-same essence. A third and supreme factor in the government of the earth

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*"They inculcate the soundest principles of government and morals; and I am not afraid to affirm that the brief composition of the Decemvir surpasses in genuine ' value the libraries of Grecian philosophy."—Tully.

and heaven—the common essence of gods and men—was thus assumed.

Cicero declared that reason prescribed the laws of nature and nations, and all positive institutions were the product of virtuous minds which could never fail to be right by the grace of the Deity. The ideology of the rising Roman Empire, however, mainly adopted the philosophy of the Stoics, which had definitely postulated the sublime hypothesis of an Universal Divine Principle as the source of all truth, goodness and virtue. The decline of the terrestrial Republic coincided with the decomposition of the celestial commonwealth of gods. Despotism on earth sought justification in the belief in an absolute power ruling the Universe. Monotheistic religion, or the hypothesis of a Universal Essence pervading everything, was necessary for placing on a firmer basis ethical, political and legal standards, all seriously shaken by the decay of the ancient social order. Good, truth, justice, virtue— now all became abstract categories, beyond the ken of reason; they were not prescriptions of human wisdom, but reflection of the Universal Principle.

For several centuries after the establishment of the biblical faith as the State religion of the Roman Empire, the intellectual life of the entire Christian world was engrossed in the highly obtuse speculation about the nature of the Supreme Being, and in the futile attempt to solve the baffling problem of the creation of the material world out of nothing by an incorporeal and impersonal agency. Gibbons' famous account of the evolution of Christian theology is prefaced by the following observation: "The latter (Trinitarian controversy) was a high and mysterious argument derived from the abuse of philosophy. From the age of Constantine to that of Clovis and Theodoric, the temporal interests of the Romans and barbarians were deeply involved in the theological disputes of Aryanism."*

**Decline and Fall of the Roman Empire.*

CHAPTER II

THE ORIGIN OF MATERIALISM

THE Greek thinker Thales has been called the father of philosophy. He is also honoured as the founder of the physical science. He disbelieved in the divinity of the - agencies causing natural phenomena. He saw that a rational explanation of nature was impossible as long as its phenomena were attributed to imaginary gods. Therefore, he discarded the old notion that all natural events were caused by the arbitrary and inscrutable volition of gods. Having set aside the old superstition, he began the search for the origin of phenomena in nature itself: for a material cause of all things, without any mystery or myth.

Along with all the other great Ionian physicists of his time, Thales did not distinguish between matter and a moving principle. They were all monists, and as such true philosophers. In their time, when science was just in the throes of birth, the knowledge about the origin of things could only be an ideal. But it was one of the greatest achievements of pure thought to have placed that noble ideal before mankind. In the beginning, there could be only plausible conjectures and working hypotheses. The rejection of the dogma that the world was produced and governed by super-natural, inscrutable and unknowable forces, opened an era of free enquiry which was pregnant of unlimited possibilities. Human mind declared its independence of the bogeys of superstition, set up by the ignorance of its own infancy. The potential power to harness the forces of nature for his benefit separates man from his less developed animal ancestors. To be conquered, nature must be known; conversely, accurate knowledge of nature can be acquired only in the process of conquering it. That is to say, science and philosophy

must develop simultaneously, one helping the other. So-long as man stands before nature, baffled, overawed, full of superstition, he can neither know nor conquer it. Science and philosophy begin only when man gathers the courage to tear down the veil of mystery from the face of nature, and becomes conscious of his mission to conquer it.

"Independent of philosophy, nature exists by itself. It is the ground on which man, himself a product of nature, grows. Outside nature and man, there does not exist anything. The higher beings are the creation of our fantasy. They are merely the fantastic reflections of our own being."* The starting point of modern materialism was thus stated in the middle of the nineteenth-century. Twenty-five hundred years earlier, practically the same revolutionary declaration had been made by the Ionian physicists.

Searching for a common natural origin of things, Thales took water for the basic element. Anaximander conceded the place to air. The latter, however, maintained that the elements like water, air, fire etc. must be traced to something more ultimate. He regarded the elements as variable, subject to conditions. As a working hypothesis, he assumed a final existence—the "all", which was infinite. The assumption smacks of metaphysics; but his reasoning makes it evident that by "infinite" Anaximander simply conceived the entirety of all elements out of which the common existence of all things originated, as he visualised, "by separation". His disciple Diogenes of Apollonia traced "the reason that regulated the world to the original substance of air". He came to the conclusion that the Universe was a living thing, spontaneously evolving itself, all its transformations being caused by its own vitality which he identified with air.

The rationalism of Anaxagoras appears to be a departure from the materialist monism of the Ionian physicists

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*Ludwig Feuerbach, *The Outcome of Classical Philosophy.*

and as such tending towards Aristotalian metaphysics. The "nous" (mind) of Anaxagoras, which governs and arranges the process of aggregation and segregation of the infinitesimal fragments, is not incorporeal; it is not a spiritual force. There was no dualism in Anaxagoras, not even a tendency. On the contrary, he raised monist Materialism on a higher level by suggesting how motion might appear in a presumably inert mass of infinitesimal fragments of matter. The difference between the latter and "nous" is quantitative, not qualitative. The motive force or Reason of Anaxagoras is analogous to the modern conception of emergent value or emergent novelty. In physics, the ingenious hypothesis of Anaxogoras indicated rather toward Descartes' theory of vortices than Aristotelian metaphysics. Owing to these profound implications of his views, the father of rationalism exercised such a great influence on modern thought, though not rated very high among the philosophers of his own time.

Heraclitus considered fire to be the original substance. He told that "the world was created neither by God nor by man; it was, is and shall ever be, an ever living fire in due measure self-kindled and in due measure self-extinguished." But his permanent contribution to materialism was the foundation of dialectics,* which destroys the absurd conception of absoluteness. "All things are in a perpetual flux. All is and is not, for though, in truth,

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*It is doubtful if Heraclitus actually used the term "dialectic"; what is clear is that he did not mean a mode of thought, but a description of the process of nature. "Dialectic", with him, therefore, must have been not a system of logic, but metaphysics. His was a relativist view of reality. At the same time, it was not Panlogism, as Hegel tried to make out. In connection with Heraclitan materialism, I have used the term "dialectric" not in the Marxist-Hegelian sense, but in the sense of dynamics; Heraclitus regarded reality not as static being, but as a process of becoming. With him, dialectic was a description of reality, not a method of conceiving or interpreting nature.

everything comes into being, yet it forthwith ceases to be." The bulk of the work of Heraclitus is lost. The existing fragments are formulated rather in aphorisms. But the iconoclastic implication of the above formula is unlimited.

The dialectics of Heraclilus, elaborated by Hegel twenty-five hundred years later, is the most formidable weapon of modern materialism. By pulling down absolute entities and immutable standards, it undermined theology and metaphysics; by visualising the world as a process, in continuous change, it opened before mankind an unlimited perspective of progress. It abolished the fiction of absolute truth and perfect knowledge, and freed the mind of man from all arbitrary limitations. Human knowledge is never perfect; perhaps it will never be; but there is no limit to its scope. This remarkable freedom of spirit enabled Heraclitus to declare: "Whatever is 'common, is true; the exceptional is false. What is beyond the comprehension of the mortal mind, is not truth, but a dream; not wisdom, but an illusion." This philosophical principle rules out faith with her train of miracles, supernatural powers etc. What is beyond human understanding, is deceptive. There is no truth which is not accessible to the senses.

Together with other Ionian physicists, Heraclitus also believed in the primacy of a material substance; but he would not stop there. He raised the question: How did things happen as they did? What was the nature of the force or movement assumed as inherent in the material '• substance? And he suggested an answer: "Through strife all things rise and pass away." The roots of the Marxist-Hegelian doctrine of the negation of negation have been traced to that cryptic saying of the "Weeping philosopher of Epheseus" which, however, is more mystic than dialectic. That as a brooding pessimist Heraclitus was rather given to poetic mysticism than to dialectic argumentation, is evidenced by the more enigmatic dictum: "Mortals are immortals, and Immortals are mor-

tals, the one living in the other's death and dying the other's life". This poetry, however, was composed to describe the physical process of fire consuming fuels and the latter becoming flame. But with all that—poetry and mysticism—as a philosopher, Heraclitus remained a materialist. In a sense, he can be called the founder of metaphysical Materialism. He was a phenomenologist, and as such tried to conceive a more realistic picture of the physical being as a process of becoming. He accepted the materialist view of the Ionian physicists, but suggested an entirely new theory of Being; in other words, he provided Materialism with a realistic metaphysics; there is a unity behind the diversity of phenomena, but it is not to be found in the substratum of the material substance which is always in a diversified state, but in the empirical fact of change. The abstract notion of being can be conceived only as the opposite of the equally abstract notion of non-being. What really exists is the process of becoming. The Spirit-Matter, Body-Mind, Subject-Object dichotomy was unknown in pre-Platonic Greek philosophy. Heraclitus fully belongs to that tradition of materialist monism.

The founder of the much maligned school of Sophism, Protagoras, thought the gods to be the result of the insufficiency of knowledge. The basic principle of his philosophy—"man is the measure of all things"—indicated the surest way to the knowledge of things. What is perceived by man really exists, and that which cannot be perceived by man does not exist. Not only is the existence of the inscrutable, supernatural forces doubted, but the dogma of absolute truth and perfect knowledge is also refuted. Protagoras laid down the principle that real knowledge could only be acquired empirically. Human mind should abjure the giddy, but useless flights' in the void and stand firmly on the ground of concrete facts.

Even Empedocles, who deviated from the ground of strict materialism towards Platonic metaphysics, thought that all things were the product of a combination of primary elements, which were fire, water, earth and air.

"There is nothing but a mingling (of the elements), and separation of the mingled, which are called birth and; death by the ignorant." In spite of his metaphysical tendency, Empedocles held the materialist view that ideas were the result of the impressions of objects received through the senses. In his opinion, changes of thought took place according to changes in the organism of man. By holding this view, Empedocles vaguely anticipated the way to some of the basic discoveries of modern biology, which have contributed ultimately to the triumph of materialism. His speculations about the growth of organisms in successive stages indicated the way towards the discoveries of Lamarck and Darwin. The ancient Greek scientists thought that nature tried all possible combinations until there resulted a creature with life, capable of propagation. The affinity with the modern biological theory of adaptation is evident. The Universe is not conjured out of. nothing by the miraculous hand of a creator, nor is it the permanent miracle of something growing out of nothing. It is the result of a purely mechanical process of continuous adaptations—of endless production and annihilation—in which finally that alone survives which bears in itself the guarantee for persistence and progress.

Ancient materialism became a comprehensive system in the hand of Democritus. Several hundred years later, it was further developed by Epicurus. The atomist theory propounded by the former, and perfected by the latter, ultimately became the foundation of modern science. The atomism of Democritus contains the skeleton of the materialist philosophy. The following are its main propositions:

1. Out of nothing arises nothing; nothing that is, can be destroyed. 2. All change is only combination and separation of atoms. 3. Nothing happens by chance; everything has a cause and happens of necessity. 4. Nothing exists but atoms and empty space. 5. The atoms are infinite in number and of endless variety of form. They are falling eternally through the infinite

space. In course of the fall, the greater impinges on the smaller. The collision produces lateral movements and, vortices. Thus commences the formation of worlds. Innumerable worlds are formed and perish successively and simultaneously. 6. The atoms have no internal conditions, and act on each other only by pressure and collision. 7. The soul consists of the finest and most mobile atoms which permeate the whole body, and produce the phenomena of life.

These propositions contain many notions which, in comparison to our present scientific knowledge, may appear crude, childish and even ludicrous. But the merit of ideas, evolved two thousand five hundred years ago, should not be judged by the standard of to-day. What is to be admired in these propositions is that they contain, the germ of modern science; that the early materialist conception of the Universe, though overwhelmed by religion, theology and metaphysics, which dominated human-thought for nearly two thousand years, survived all the vicissitudes of history, to become the weapon in the struggle for the spiritual liberation of man.

The first proposition contains the two basic principles, of modern physical science, namely, the indestructibility of matter and the conservation of energy; the second lays down the corner-stone of a strictly mechanistic cosmology. These principles make no room for a creation of the Universe. Together, they keep the human mind away from, the fantastic doctrine of creation out of nothing—a doctrine which strikes at the very root of all philosophy. Out of the two first propositions, the third logically follows. It is a decisive negation of teleology. In it lie in embryo the scientific theories established so many centuries later by Descartes, Newton, Boyle, Kant, Laplace and many others. All the phenomena of nature are governed by the mechanistic laws followed by the atoms in their eternal motion. The materialistic denial of Final Cause is misunderstood or misinterpreted by the advocates of teleology or predestination as belief in blind chance. The third

proposition of Democritus leaves absolutely no room for such misunderstanding. It clearly rules out chance, and visualises necessity as the lever of every happening. Materialism does not admit accident or chance any more than it tolerates the ideological doctrine of Final Cause or the religious dogma of predestination.

A happening is called accidental when its cause is not yet known. Philosophy does not admit ignorance as testimony to the existence of inscrutable super-natural forces. Confronted with a phenomenon, as yet unexplained, it simply pleads temporary ignorance, and sets about to know the unknown. Otherwise, all physical investigation and exact science would be impossible. The beginning of the quest for positive knowledge could be made only with a plausible hypothesis. Democritus supplied it. Discoveries made in course of subsequent investigations, made possible by the hypothesis, verified it, corrected its mistakes, removed its defects, and have finally established it as a scientific theory. The discovery of the mechanistic laws of nature has cleared away the prejudice of a Final Cause, and has theoretically established the view that nothing happens by chance; every happening is necessary, has its cause.

The fourth proposition offers the basis for a rational explanation of nature. The foundation of all great discoveries of physical science has been the reduction of the phenomena of nature into the motion of the smallest particles of matter. The atomic theory has led to the discovery of the laws of sound, light, heat and all other physical and chemical changes.

The fifth proposition sketches a picture of the rise of the Universe from the mass of smallest particles of matter in constant motion. In the light of modern scientific knowledge, this picture may appear rather childish. It was not only a vague conjecture, but contained mistaken notions. Nevertheless, the picture as a whole represented a bold penetration into the mysteries of nature. Once nature was reduced to a conglomeration of the small-

est conceivable particles, a hypothesis regarding the combination and separation of atoms becomes necessary for a rational explanation of the Universe. The atoms must somehow come together so that bigger bodies might be formed. The diversity of the size of the atoms is the weakest point in the system of Democritus. It means that the' common denominator of all phenomena is not reached at the atoms; for, the diversity of their size proves that the stage of indivisibility has not been reached. The bigger atoms, at any rate, can be split into parts equal ta the smallest.

These are the logical flaws of the conception of Democritus. But any criticism of the antique atomic theory from the point of view of modern physical knowledge would be out of place. Democritus had to contrive some way out of the difficult problem of *action at a distance*—a problem which baffled not only Newton, but the entire physical science still for a long time. Unless the atoms were of equal size, they -would fall in endless parallel lines, and nothing would ever come out of their motion. Another flaw in the grand conception of Democritus was the vagueness of the notion of space. If space was conceived as an absolute void, diversity of size would not make any difference in the speed of falling bodies. Aristotle seized upon this flaw and made it the pivot of his attack upon the mechanistic conception of the Universe.

With all his vagueness and defective notions, Democritus carried out his speculations strictly according to physical principles, and for the first time gave a complete rational explanation of the Universe. Scientifically, his views have been greatly corrected and amplified; philosophically, however, they remain as valuable as ever. Had Democritos, or even all the Greek materialists taken together, said everything there is to be said on the question, then, they could not be what they were. For, materialist philosophy visualises an endless progress of knowledge. It was not possible to know all at once what has since

been known in course of twenty-five centuries. To claim perfect knowledge, one must believe in divine revelation. Physical enquiries, undertaken on the basis of the conjectures and hypotheses of the Greek materialists, progressively increased the store of human knowledge which, in ks turn, corrected the mistakes of the original conjectures, and verified the hypotheses into theories.

In the sixth proposition, the baffling problem of action at a distance is dealt with. The root of metaphysics can be traced to this problem. The failure of ancient materialism to offer a convincing solution to this problem caused the deviation of philosophy to metaphysical speculations. Time and again, metaphysics maintained its shaken position by making capital out of the inability of earlier materialism to explain the phenomena of sensation. The problem could not be solved experimentally in that epoch, owing to the backwardness of natural science. The anxiety to get round the problem lured ancient materialism to corrupt itself with metaphysical deviation. By his effort to rid the system of Democritus of the weakness on the question of action at a distance, the last Greek materialist, Epicurus, compromised with metaphysics. Democritus himself, however, was categorical on the point. The absence of experimental science did not permit him to be so, scientifically. But philosophically, he left no room for ambiguity inasmuch as he denied the atoms any internal conditions, that is, sensation. The materialistic unity of the origin of things is strictly maintained in the atomism of Democritus. The movement of the original substance is purely mechanistic. No hand of the creator shapes it into diverse forms, nor is consciousness an inherent property of matter. The atoms are purely material bodies which move according to purely physical principles, and being in themselves without sensation, produce sensation, that is, thought, as the result of particular forms of their combination. The motion is inseparably associated with the very being of the atoms. By the logic of their very existence, they act

upon each other; so, no supra-material internal condition, such as attraction and repulsion, sympathy and antipathy, love and hatred, attachment and detachment, so on and so forth, as postulated by many speculative thinkers, is necessary for them to coalesce and assume successively higher and higher forms. The whole process is mechanistic, taking place necessarily, in an interminable causal chain. The primary movement of fall necessarily causes impingement, and the consequent lateral motion of the atoms; the lateral motion, in its turn, produces collisions which cause vortices. The process becomes more and more complicated, and operates strictly according to mechanistic laws. The Universe grows out of this process, as proved later on, with mathematical precision, by modern physicists since the time of Kant and Laplace.

In view of this purely materialistic conception of the atom and its movements, it is evident that no metaphysical deviation is to be detected in the seven propositions. Obviously, the term 'soul' is used as a *facon de parler:* for, the souls are also composed of atoms, and atoms are purely material, without any internal condition. The soul-atoms, therefore, must move, like all other atoms, strictly according to mechanistic principles. Their combination produces the so-called vital phenomena. When chemistry was practically unknown, and biology was a thing of a very remote future, the ancient philosopher could not be expected to visualise any more clearly the transition of matter from the *morgana* to the *organa.* But he did conceive, though rather vaguely, of a process of differentiation of matter into the organic and inorganic without abandoning the ground of strict materialism. In the light of modern biological knowledge, particularly of physiology and psychology, the Democritan conception of soul-atoms and their properties becomes highly interesting. If Democritus was mistaken, it was on the side of exaggeration. He might have confounded consciousness with brain, thought with mind. But few psychologists

even of our days can avoid the mistake of confusing the organs with their functions and properties.

The vulgar parody on materialism—"eat, drink and be merry"—is associated with the name of Epicurus, who gave ancient atomism the final shape in which it eventually became the foundation of modern physical science. The moral teachings of Epicurus, and the simplicity of the life lived by himself and his disciples, give lie to the malicious misinterpretation of his philosophy.

In India, the Charvaka philosophy received a similar malicious treatment from the Brahmanical reaction. For maintaining the very sensible view that there is nothing, after death, all sorts of absurd and atrocious doctrines were attributed to the Charvakas, and their authentic teachings were destroyed. Fortunately, Epicureanism escaped such a fate, and came down in history as an impetus to modern science. But only fragments of the very-voluminous writings of its exponents have been saved.

The modern world has been correctly acquainted with the philosophy of Epicurus through the famous didactic poem *De Rerum Natura* by Lucratius Carus. The spirit of Epicureanism is beautifully portrayed by the Roman poet. "When human life to view lay foully prostrate upon earth, crushed down under the weight of religion, who showed her head from the quarters of Heaven with hideous aspects, lowering upon mortals, -a man of Greece ventured first to lift up his mortal eyes to her face, and first to withstand her to her face. Him neither story of the gods, nor thunderbolts, nor heaven with threatening roar, could quell, but only stirred up the more—the eager courage of his soul filling him with desire to be the first to burst the fast bats of nature's portals."*

Until its true spirit was revived by the researches of the rationalist French clergyman Gassendi in the seventeenth century, the common notion of Epicureanism was-

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*Translated by Monroe.

based upon the interpretation of the unscrupulous and opportunist Roman lawyer Cicero. The Roman ruling class prostituted the teachings of Epicurus for their purpose. "The theory of Epicures was in every way purer and nobler than the practice of these Romans; and so now two courses were open to them—they either allowed themselves to be purified and became modest and temperate, or they corrupted the theory, so combined the conception of its friends and foes, that they ended in having a theory of Epicureanism which corresponded to their habits."*

In the last days of the Roman Republic, when Greek learning and culture was fashionable, Stoicism and Epicureanism were the dominating schools of thought. The Romans were as yet too crude to appreciate any of the two contending schools fully in the light of their vast theoretical background. Eminently practical as they were, the Romans rushed to practice Epicureanism without grasping its theoretical foundation. Political greatness and the consequent economic prosperity had corrupted the primitive simplicity and austerity of the Romans. A social crisis, as evidenced by the civil wars, had shaken old virtues. The Epicurean doctrine of happiness was welcome as a philosophic garb for the pleasure-seeking patricians. The essence of Epicureanism is the striving for freedom. With the Romans, devoid of any cultural tradition, and unable to think abstractly, freedom degenerated into libertinism. The "practical materialism" of the Roman Epicureans offered the Stoics the opportunity to paint Epicureanism in lurid colours—the form in which it was popularly known for ages. Lucratius, therefore, begins his poetic exposition of the Epicurean philosophy with the question: "Does it lead us into the paths of immorality and sin, because it had torn down and trodden under foot the religion which once cruelly oppressed mankind?" The answer, given in the

*F. A. Lange, *History of Materialism.*

light of the real teachings of Epicurus, is decidedly in the negative.

Epicurus held that happiness was the object of life. The doctrine found an enthusiastic welcome among the patricians of pre-Christian Rome; but later on, it was severely censored by Christianity. Applied to the masses of the people, such a doctrine would be of a highly revolutionary consequence; therefore, in the interest of the ruling class, it must be suppressed. In combatting Epicurean materialism, Christian spirituality only served the mundane interest of the ruling class.

The basic principle of Epicureanism is stated in his definition of philosophy: "The activity that makes man happy through knowledge." Epicurean happiness thus is obviously not carnal pleasure. It is spiritual calm, to be attained not in blind faith or idle dream, but in knowledge.

Epicureanism traced its descent directly from ancient materialism, and handed it down to the posterity in the least adulterated form. The positive outcome of the ancient Greek culture was the scientific achievements of Alexandria and Epicurean philosophy. They are two links which connect modern civilisation with the ancient, through the fifteen centuries of mediaeval darkness.

Scepticism and its inevitable consequence, pessimism, could be checked either by a relapse into faith or by the discovery of a sure road to knowledge. The Stoics led the way in the former direction, whereas Epicurus asserted the possibility of acquiring knowledge of things by reviving the materialist and mechanistic conception of nature as expounded by Democritus. When, as a schoolboy, he was taught that the Universe arose from chaos, Epicurus asked: "And whence came the chaos?" The teacher had no reply to satisfy the inquisitive pupil. Neither was it available from moral philosophy nor from metaphysics. The eager quest for a rational cause of things led Epicurus to the old atomist theory.

National downfall had broken all the old ties of life

in Greece. In despair, thinkers were seeking consolation in some form of faith, and thereby falling into all sorts of superstition. Epicurus placed an object before life. It was to find happiness in the knowledge of the cause of the external orders of the Cosmos. Constant changes in society as well as in nature caused great anxiety in human hearts, because people did not know what might happen next. They stood trembling before an unknown fate which appeared to be inexorable. Only the knowledge of the cause of those changes could free man from the tormenting fear either of the unknown after death or of the oblivion of death itself. The knowledge that change is a necessary process, inherent in things themselves, regards it with calm, free of terror, and it raises man above superstition. People believing in the myth of gods are made miserable by the feeling that they are helpless victims of arbitrary celestial beings. Others are unhappy because death will put an end to their existence. But it is just as foolish to feel ourselves helpless victims of imaginary gods, as it is unreasonable to regard the necessary phenomenon of death as an evil. Owing to the very fact that it puts an end to our feelings, we should be quite indifferent to death. As soon as death comes, we exist no more; therefore, there is absolutely no reason to be concerned with what happens after death. A thing is evil when it causes us pain; since death can cause no pain, it is no evil to be afraid of We cannot feel either pain or pleasure when we do not exist.

Following this line of contemplation, Epicurus arrived at his doctrine of happiness which later on became the object of such malicious misinterpretation. But one can easily realise how different is his conception of happiness from what it was made out to be, when it is known that Epicurean pleasure is not to "eat, drink and be merry", but knowledge. Knowledge of the causes of the constantly changing things frees man from the fear and anxiety which arise from the feeling of helplessness, and that freedom makes man happy. That being the case, to seek

happiness is the object of life. Epicurus taught that every pleasure is good, every pain is evil. Every pleasure is good, because it results from knowledge; pain is evil, because it is caused by ignorance.

The confusion about the moral teachings of Epicurus results from two things: His opposition to Stoicism—which eventually became the foundation of Christian ethics; and his bitter attack upon religion. The Stoics held that virtue is happiness, whereas Epicurus taught that to be happy, one should be virtuous. Superficially, there seems" to be little difference between the two points of view. Philosophically, and by practical implication, they are, however, like poles apart.

Starting with the common object of finding consolation for the distracted individual, to rescue him from the stormy sea of Scepticism, the Stoics set up the doctrine that the highest realisation of the individual existence is to submerge itself into the general; Epicurus, on the contrary, came to the conclusion that, to be free of all superstition and arbitrary limitations is inherent in the existence of the individual. It was this quintessence of Epicurean philosophy, rescued by Gassendi in the seventeenth century, that became the most powerful weapon in the struggle for the spiritual liberation of the European humanity from the thraldom of the Catholic Church.

In the light of this philosophical difference, a vast diversity is detected beneath the superficial similarity of the Stoic and the Epicurean doctrines of happiness, According to the Stoics, virtue is the thing in itself; it should be practised for its own sake. The practice of this or that virtue may actually cause pain; yet it should be practised because the happiness is not in the result of the practice, but in the practice itself. The result may be un-happy; nevertheless, one should feel happy simply by practising virtue.* This doctrine divests happiness of a

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*The analogy with the doctrine of *Nishkama Karma,*. expounded in the Gita, is evident.

real existence. It can be felt only in imagination. One can never be really happy or unhappy. It all depends on how one feels or rather imagines. The restlessness of the individual is not to be cured by the removal of the cause. It is to be quietened by the application of a drug. Resignation and submissiveness came to be the noblest human virtues. The ideological foundation of the Roman Stale and Church was laid by the Stoic philosophy.

With the Epicureans, on the contrary, virtue is the means to an end, which is happiness. The two are not identical. A particular virtue is virtue as long as its practice makes one happy. The corollary to this proposition is that, as soon as the practice of a particular virtue ceases to make one happy, it is no longer virtue. Thus, Epicurus not only combatted the Stoic doctrine of servility, but liberated human mind from the rigid artificiality of Aristotle's logic. Reverting to the dialectics of the older materialist thinkers, he held that man cannot be happy unless he is wise, noble and just; and, conversely, one cannot be wise, noble and just without being really happy. Wisdom, nobility, justice are not abstract categories. They are relative, changeable conceptions, determined by the standard of happiness which, in its turn, is derived from knowledge. Since the knowledge of things reveals them in a process of constant and continuous change, it destroys all fixed standards of virtue.

The individual was restless in the bonds, artificially placed upon his spirit. Epicurus shattered the bonds, and the individual became calm in the contemplation of the endless perspective of knowledge opened up before him. Well in advance of his time, Epicurus went much farther. For him, contemplation was not a tacit attitude. He taught that nature had placed man in such a position that he must act, and knowledge is acquired in the process of the action of man. Reflection and enquiry take place in consequence of the contact of man with external objects; then, ideas develop in an endless process. This theory of cognition struck at the root of Scepticism which had been

unsuccessfully combatted by all the other systems of ancient philosophy ever since it left the firm ground of materialism. Faith, resurrected by Plato, rationalised by the Stoics, and later on culminating in the new religion of Christianity, only served to hush the tantalising voice of doubt. It was censored, not satisfied. Epicurean materialism offered calm to the spirit, tormented by doubt, by asserting the possibility of endless knowledge.

Since his doctrine of happiness, to be attained through knowledge, could be established only on the basis of a materialist and mechanistic conception of nature, Epicurus necessarily set aside the mythical gods, and was hostile to religion. He taught that deliverance from "the degrading and demoralising influence of religion" was the essential aim of philosophy. But he pursued the aim with a remarkably dispassionate calmness. His very atheism and irreligiosity were softened by a flavour of piety. He denied the existence of gods with the singular argument that to believe in them, as beings concerned with material things, was to deprive them of their godliness. If the gods are what they are believed to be—eternal, immortal, super-natural, beings—then, their very nature makes it impossible for them to do what they are supposed to do— cause and govern the phenomena of nature. It is an insult to their heavenliness to believe that they occupy themselves with earthly things. All the events of nature proceed according to natural laws inherent in nature itself, without interference from the gods. This respectful way of bowing the gods down their throne was as ingenious as it was effective. For this, Epicurus naturally incurred the undying hatred of the priesthood. Although its faultless piety and sublime disinterestedness recommended Epicureanism to the early Christians, and its respectful dismissal of the anthropomorphic gods appeared to clear the ground for monotheism, yet, the very godliness of Epicurus was the deadliest attack upon religion. Critical examination of the origin of Christianity has revealed that the idea of endowing a person with divinity might have

emanated from the Epicurean prescription: "A noble man should be elected as the representation of God, so that he may look upon us live, and see us act." Traced to such an origin, the doctrine of the divinity of Jesus appears in its mythical nature; consequently, the entire edifice of Christianity, reared upon that doctrine, collapses.

For a philosophical basis of his irreligious morality and godless piety, Epicurus resorted to the atomist theory of Democritus. In the atom, he found a picture of his conception of the individual. Democritus had conceived a mechanistic physical system without any motive. Epicurus adopted it as the foundation of a system of ethics. Therefore, he subjected it to some modifications to suit his purpose. Epicurean modifications of the atomist theory, however, solidified the foundation of materialism, although introducing in it some elements of discord. Aristotle had seized upon the weakness of the theory of the impingement of atoms in fall, to refute the whole Democritean hypothesis. Aristotle's objection was in the line of modern physics—in a void 'space, all bodies, irrespective of size, would fall with a uniform speed; hence, there could be no impingement necessary for the atomic motion to become more and more complex.

In order to meet the objection, Epicurus conceived the atoms deviating slightly from the straight lines of their fall. The modification was necessary also to serve the purpose of his philosophy—to endow the individual with a free will, without the intervention of any factor outside nature. While introducing an element not compatible strictly with materialism, the modification nevertheless freed the atomist theory of its obvious defects, putting it in the shape in which it was made the basis of modern physics by Descartes, Newton, Boyle, Heuyghens and others.

The doctrine of the deviation of atoms has been interpreted as a conscious effort on the part of Epicurus to desert the ground of strict materialism. From the frag-

mentary remains of his voluminous works, it cannot be ascertained what was his motive. In any case, the doctrine does not necessarily affect the mechanistic nature of the movements of atoms. It does not introduce the element of consciousness in primal matter. On the contrary, it amplifies the crude mechanistic conception of Democritus, so as to obviate the possibility of any dualist degeneration of the atomist hypothesis. However questionable it may appear from the point of view of a strictly materialist philosophy, the Epicurean doctrine of atomic deviation does not go contrary to the later development of physics. *(e.g.* Descartes' theory of the vortices, Newton's Law of Gravitation, the nebular hypothesis of Kant and Laplace.) As a matter of fact, these later developments throw an entirely different light on the Epicurean picture of atomic movement. The doctrine of the deviation of falling atoms may be connected with the Newtonian discovery that the heavenly bodies gravitated towards each other. The generalisation of the Law of Gravitation can easily be reconciled with the deviation of atomic motion. The revolving motion of the nebulae can be visualised as the extremely complex development of the Epicurean deviation of atoms.

The Epicurean restatement of the atomic theory leaves no room for any possible dualism. "Out of nothing, nothing conies, for otherwise, anything could come out of anything. Everything that is, is body; the only thing that is not body, is empty space. Atoms are indivisible and absolutely immutable. The atoms are in constant motion. While they approach each other, they combine. But of this, there was never a beginning. The atoms have no qualities, except size, figure and weight."

These basic principles of Epicurean physics clearly visualise the atom being without any intrinsic quality. They have only external motion, from which results the combination of atoms, and the formation of larger bodies. The suspected metaphysical deviation of Epicurus has been traced in his theory of soul. "The soul is a fine

substance distributed through the whole mass of body, .and most resembles the air with an infusion of warmth." In view of the fact that Epicurus reduces the atoms to the smallest uniform size, his "soul-substance" may not appear as material as the "soul-atoms" of Democritus. But both are equally subject to the same mechanical motion governing matter. Besides, while talking of the soul, Epicurus makes it quite clear that it is neither immaterial nor simple nor immortal. Epicurean soul dies with the body. Therefore, it is obviously the vital phenomenon which is produced by a certain combination of matter. "When nothing was known regarding the nerve-force, some .differentiation of matter had to be assumed for the explanation of life. But that by no means admits the existence of a non-material spirit parallel to, and independent of, matter.

The most advanced section of mankind boldly freed itself from the awe of natural phenomena. It dared look nature in the face; tore off her veil of mystery; and set aside the mythical gods. It wanted to know the causes of the phenomena of nature, and sought them in the nature itself. Thus philosophy was born.

But to undertake a task is yet far from accomplishing it. To know nature, man must overcome nature. Knowledge is acquired not through contemplation, but action. No amount of argumentation would convince one of the sweetness of sugar, unless he ate it. Philosophy degenerated into metaphysics, because man was not yet sufficiently advanced in his conquest of nature. The materialist conception of the origin and evolution of the Universe is the mother of science. Unless a thing is assumed to be know-able, efforts to know it cannot begin. The rational cosmological conception of the philosophers of ancient Greece sowed the seeds of science. The materialist philosophy gave birth to science; in its turn, it could be victorious only on the basis of scientific knowledge. The grand mission of knowing nature in order to explain its diverse :phenomena in physical terms, set before mankind in its

early youth, could not be accomplished by one man, nor in one generation, nor even in an entire age. It is the mission of mankind; the history of mankind is the record of the realisation of this mission. The progressive accomplishment of the mission being conditional upon the conquest of nature, materialism, apparently overwhelmed by metaphysics, reappeared in the field of human ideology as soon as experimental science began to develop. Each great discovery of modern science strengthened the foundation of materialism. But even in the antique period, materialism was overwhelmed only apparently.

The materialist cosmology of Democritus, improved by Epicurus, survived Christian theology and scholastic metaphysics which, drew inspiration from Plato, Aristotle and the Stoics. The rational materialistic foundation of the Aristotelian system itself eventually shook off its metaphysical super-structure, to become a powerful lever of modern civilisation. At the close of the middle-ages, the rationalist Aristotle deposed the master of metaphysics who had dominated European thought for more than a thousand years.

The metaphysical deviation of the Greek philosophy led up to the establishment of the Catholic Church which held European humanity in ignorance and superstition, and therefore obstructed all spiritual progress for so many hundred years. But at the same time, its materialist essence promoted the scientific culture of Alexandria. An outcome of the Democritan and Epicurean conception of the uniformity and necessity in the course of nature, Alexandrian learning was the brilliant prelude to the age of modern science, though separated from the latter by more than one thousand and five hundred years. As a matter of fact, Copernicus, Galileo, Kepler and Newton took up the thread of science left off by Archimedes, Aristarchus, Hypparchus, Euclid and others. Even in organic science, Galen was not far behind the point from which Lamarck and Darwin began. Thus, fifteen hundred years of metaphysics and theology could not deprive humanity

of its materialist heritage. As soon as social conditions-enabled European humanity to return to the conquest of nature, a process disturbed by the chaos following the decline and downfall of the Roman Empire, the fire ot knowledge, kindled in antiquity, began to shine through the darkness of faith.

CHAPTER III

MATERIALISM IN INDIAN PHILOSOPHY

IN INDIA also, the dissatisfaction with the Vedic Natural Religion gave rise to speculations about the origin of things. Some of the earlier Upanishads are fragmentary records of those speculations. But for reasons stated in a preceding chapter, early Indian speculations about the origin of things developed directly into metaphysics and a precarious form of monotheistic religion. Yet, towards the close of the misty Vedic era, approximately about the 7th or 8th century B.C., there rose thinkers who represented distinct materialist tendencies. The teachings of those early speculative rebels are almost completely lost. Only the general drift of the currents of their thought can be approximately inferred from the works of their orthodox opponents. There is, however, ample evidence to conclude that the too earlier systems of Hindu philosophy —Vaisheshik and Sarikhya—were the positive outcome of the speculations recorded fragmentarily and rather enigmatically in the earlier Upanishads. The Vedic society was in the process of dissolution. The pastoral tribal organisation, under priestly domination, was buttressed ideologically on the natural religion of the Vedas. The ideology of the forces making for its dissolution was expressed by the philosophers who challenged the authority of the gods by trying to explain the being and becoming of the world in a rationalist and materialist way.

All the existing schools of philosophy mention earlier thinkers as "heretics" or "nihilists". The former had denied the authority of the Vedas; the latter doubted if anything existed at all. According to the Sankhyas, the "nihilists" held: "Since nothing really exists, except thought, neither does bondage exist; just as the things of .a dream have no real existence. Therefore, it (bondage)

has no cause; for it is absolutely false. The reality is a void. What is, perishes, because to perish is the habit of things. The void alone is the reality. Since everything that exists, perishes, and that which is perishable is false, as in a dream, bondage has merely a momentary existence, is phenomenal, and not real. Therefore, who can be bound by that? Nothing continues after quitting its own nature; therefore, nothing- could continue in existence, if it ceased to perish (that is, ceased to have its nature)."

From such fragmentary records, it is very difficult to reconstruct the whole system. But to do so obviously is essential for the composition of a complete history of ancient Indian thought. For the moment, the fragmentary evidence clearly proves that the speculative efforts made to outgrow the childishness of the Vedic Natural Religion did not directly develop into the metaphysical conceptions recorded in the existing Upanishads. There was a distinct tendency of development in the opposite direction. Not only was the authority of the Vedas boldly challenged, but the earlier forms of metaphysical thought were subjected to ridicule, and the denial of the Gods or supernatural agencies was stretched to the logical conclusion of denying the existence of everything since this latter depended on the existence of imaginary metaphysical entities.

The Upanishads record not only strands of rationalist, naturalist and agnostic thought, but also out-and-out atheism and materialism. At least one of the main eighteen books is entirely devoted to an exposition of rationalist and naturalist thinking and the most outspoken heretical views. It denies the existence of God and soul; it holds that nothing but matter exists, and that there is no other world beyond this world. Its thesis can be summarised as follows:

"There is no incarnation, no God, no heaven, no hell; all traditional religious literature is the work of conceited fools; nature, the originator, and time, the destroyer, are the rulers of things, and take no account of

virtue or vice, in awarding happiness or misery to men; people deluded by flowery speeches cling to God's temples and priests when, in reality, there is no difference between Vishnu and a dog." (Swasanved Upanishad, Sutra II).

The origin of the naturalist and sceptic thought developed in some of the major Upanishads, indeed, can be traced even in the Rig Veda; for instance, the Creation Hymn which concludes the dialogue between the parents of mankind—the twin brother and sister, Yama and Yami.

The Vedas themselves also furnish the evidence of heretical naturalist thought growing already in the Vedic time. There are Vedic hymns which refer to heretics and unbelievers. They .evidently were the pioneers of the revolt against the natural religion and as such forefathers of Indian philosophy. As in ancient Greece, so in India also, the first attempts of human intellect to explain nature in natural terms gave birth to philosophy; that means, in India also originally, philosophy was materialism. The Vedas and the early Upanishads refer to the Swabhavadins (naturalists) and their doctrines. They disputed the reality of the gods of natural religion and scoffed at the pretensions of the priests. From the scant references made only to refute them, it can be inferred that those early pioneers of Indian philosophy were empiricists; they held that perception was the only source of knowledge as well as the only reliable evidence. Therefore, they were called *darsanihas,* and the term subsequently came to mean philosopher. The Sanskrit word *darsana* means perception. The authorship of the *lokayata darsana,* the earliest Indian philosophy, is traditionally ascribed to the legendary figure of Brihaspati—the preceptor of the gods. The legend indicates that in the olden days the naturalist rebels against blind faith and orthodoxy were held in high esteem. The fact that Brihaspati has gone down in history also as the founder of the Charvak system developed in a later period as the culmination of the materialist thought in ancient India, proves that until the fall of Buddhism, that is, for more than a

thousand years, materialism was a continuous current of thought in ancient India. The fundamental principles of the *lokayata darsana* (Indian materialism), as it developed over this long period, were recorded as follows by Krishna Misra, who was a younger contemporary of Buddha:

"In it only perceptual evidence is authority. The elements are earth, water, fire and air. Wealth and enjoyment are the objects of human existence. Matter can think. There is no other world. Death is the end of all."

The Ramayana records the story of Javali—the sceptic and sophist who questioned faith and scriptural laws. The Mahabharata also denounces "doubters and atheists who deny the reality of soul". They "wander over the whole earth"; they were "rationalists, critics of the Vedas, revilers of the Brahmans". The Gita also refers to heretics who deny the existence of God.

Nihilism was the ideology of the dissolution of antique society in India. It was revolutionary in the sense that it was a mighty revolt against Vedic priest-craft; but as a school of philosophical thought, it was sterile. Nevertheless, it very greatly influenced Buddhist philosophy. The need to dispute the nihilist doctrine promoted the rise of materialistic tendency. Indian materialism rose as reaction to nihilism. The materialist schools of Indian philosophy represented currents of thought evidently stimulated by nihilism. In order to dispute the doctrine that nothing existed, it was necessary to rely upon the existence of the material world which no sensible person could possibly dispute. The connection between nihilism and the outspokenly materialistic Vaisheshik system still remains a matter of investigation. But its connection with the quasi-materialist Sankhya system is quite evident. In their fight against the nihilists, the Sankhyas were driven very close to out and out materialism. In order to prove the reality of some existence, Kapila had to fall back upon the material world. The existence of thought by itself, or that of disembodied spirits, could not be proved to the satisfaction of the sceptics who expounded

their nihilist doctrines as the logical deductions from the early spiritualist cult which was being set up in order *to* drug the victims of social chaos, so that they might ignore the miseries of this world as bad dreams. Therefore, more tangible evidence for the reality of existence had to be produced. The rebels and revolutionaries of ancient India thus made the rise of a philosophy possible. In order to prove the existence of thought, Kapila, for example, had to refer the reality of thought to the reality of the external world. His highly materialistic theory of cognition was also developed under the powerful impact of nihilism.

Even in the major Upanishads, which have come to be regarded as the foundation of the Vedantist metaphysical system, the discerning student finds unmistakable evidence of materialism. That is only natural; because the speculations of men, whose spiritual thirst is no longer satisfied with the moonshine of natural religion, inevitably tends towards a physical explanation of natural phenomena. Ancient Indian speculation could not be free from this general psychological rule. Fragmentary evidence only proves that records of the early materialistic thought were destroyed in course of time. Until those lost chapters of the spiritual history of India are recovered or rewritten. Indian philosophy will hang in the air. Pending the accomplishment of that outstanding task, for the present purpose it will be sufficient to reproduce some well known passages from the more important Upanishads :

"What is the origin of the world? Ether *(akasha),* for all these beings take their rise from ether only, and return into ether. Ether is their rest."

Again, "That which is called ether, is the revealer of all forms and names."*

If the conception of *akasha* is devoid of all content, then, the argument of the nihilists becomes unanswerable, and everything must be reduced to nothing, as non-

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**Tchandogya Upanishad.*

existent. Moreover, in the same Upanishad, Brahman is also mentioned as the cause of everything. If *akasha* was a metaphysical conception, identical with Brahman, it would not be necessary for its being specified as the revealer of all forms and names, in addition to Brahman. Obviously, the function of revealing forms and names does not belong to Brahman. If things are supposed to have another cause, over and above the metaphysical Final Cause, then, the former must logically be conceived as a material cause. There must have been dispute on this point. Because Sankaracharya found it necessary to insist that "the word ether must here be taken to denote Brahman." But it is equally, or perhaps more, logical to assume that the obvious meaning of the passage is more sensible and, in that case, the fact that Brahman also was mentioned as the cause of all is to be set to the credit of prevailing prejudice. The assumption of the material cause, named ether, is sufficient for explaining the origin of the world. Yet, the venerable conception of Brahman is retained as a matter of form. The entire history of scientific thought, almost down to our days, suffers from this fallacy.

In the Katha Upanishad, the world is visualised as evolving out of a primal material condition. Kapila takes that as his point of departure for the doctrine of the Pradhan and Avyakta (undeveloped or potential).

In Svetasvatara Upanishad, Aga (fire) is assumed as "the one unborn from which everything springs". Aga is not, however, identified with Brahman. So, it must have been ^conceived as a cause other than the spiritual First Cause. Here again, the physical world is traced to a material origin. The materialistic tendency in the Svetasvatara Upanishad is so very pronounced that even Sankaracharya finds it very difficult to explain it away. It will be shown later on that, in order to combat Buddhism which was the ultimate outcome of all the materialist tendencies in ancient India, Sankaracharya was compelled to take up a very thinly veiled materialistic position.

The Vedanta has come to be accepted as the most

representative and authoritative school of ancient Indian philosophy. As its name implies, it claims to contain all the wisdom of the Vedas. But being based on the authority of the Scriptures, it can hardly be accorded the distinction of philosophy. As a matter of fact, Vedanta is a very highly metaphysical system of theology. As such, it goes beyond the limits of a theistic religion, and represents a very highly developed form of pantheism. Pantheism is only inverted materialism. No other logical conclusion can be drawn from any consistent system of monism. The Vedantist metaphysical speculation completely destroys the idea of a god, and consequently liquidates religion. The materialist implication of the Vedantist pantheism becomes evident in its masterly exposition by Sankaracharya. The metaphysical monism of the Vedanta system was constructed by the Brahmin intellectuals in order to combat the materialist schools of philosophy which had logically resulted from the earlier speculation of thinkers no longer satisfied with the fantasies and fairy-tales of the primitive Vedic religion.

The spiritual revolt represented by the Indian materialists eventually culminated in the rise of Buddhism Avhich all but liquidated the Vedic natural religion and freed India from Brahmanical domination for several hundred years. Internal evidence proves that the Vedanta Sutras were composed for combatting Buddhism. Therefore, they could not be regarded as the direct outcome of the speculative thought recorded in the Upa-nishads. The composition of the earlier Upanishads and the Vedanta Sutras must have been separated by several hundred years, during which period the spiritual development of India was in the direction of materialism, represented by Kanada, Kapila and many others, and of rationalism, represented by the Buddhists and Jains sub-sequently. The triumph of Buddhism, and its supremacy for so many centuries prove that the metaphysical school of thought, represented by the Vedantists, could not check the tide of materialism and rationalism. It was

only after the defeat of the Buddhist revolution that Vedantist metaphysics and pantheism were revived as the ideology of the Brahmanical reaction. The Sutras themselves could not have been compiled earlier than the fourth century B.C., by which time Buddhism had become a powerful challenge to the Brahmanical orthodoxy. Because, a considerable portion of them is devoted to a vigorous polemic against the Buddhists. On the other liand, the philosophical origin of Buddhism is clearly to be traced to the Sankhya and Vaisheshik systems. The early Buddhist as well as Jain philosophers drew their inspiration from Kanada and Kapila.

Although there is reason to believe that those fathers •of Hindu philosophy lived more or less at the same time, a comparative study of the two systems allows the inference that Vaisheshik was the oldest system of Hindu philosophy. Its founder lived about the same time as the founder of ancient Greek materialism, namely, approximately, in the sixth century B.C. He also expounded an atomist theory for explaining the origin of the world. The "following are the main points of Kanada's atomism.

All substance is composed of parts which are governed by their qualities of inherence and conjunction. That thing at which the distinction of whole and the parts stops, and which therefore marks the limit of division into minuter parts, is the atom. The atoms are the cause of the world; an effect may not be assumed without cause. The atoms are eternal, belong to four classes which possess corresponding qualities. The atoms of the same class and of similar quality combine to produce the several gross elements. The combination takes place by two causes:' The material cause, inherent in the atoms themselves, and the non-inherent cause is assumed to be the super-natural will.

All substances consisting of parts originate from the substances connected with them by the relation of inherence. The substance is composed of parts inherent in it. The relation of conjunction operates in the process.

Inherent parts of a substance come together, thanks to the relation of conjunction, to produce the substance. Whatever consists of parts, originates from those substances with which it is connected by the relation of inherence, conjunction co-operating. The whole world is composed of parts; because it is composed of parts, it has beginning and end; an effect may not be assumed without a cause; therefore, the atoms are the cause of the world. The atoms are of a spherical shape. When the atoms are isolated and motionless, no effect is produced. After that,, the unseen principle, acting as the operative cause, and conjunction co-operating, they produce the entire aggregate of things, beginning with binary atoms. The material cause of the atomic compound is the constituent atoms; the conjunction is caused by the unseen operative cause.

The materialism of the system is evident. The only weak spot in an otherwise self-contained system of purely physical explanation of the origin of the world, is the assumption of the unseen, non-inherent, cause in addition to the material cause. Obviously, the assumption is superfluous. Since the tendency to combine is inherent hi atoms themselves, there is absolutely no need for an unseen *(adrishta)* cause to make them coalesce. The Vaishe-shik system does not need an impulse from outside for the atoms to begin aggregating. The tendency to combine is inherent in the atoms. "Bigness is produced from plurality inherent in the causes." That is to say, to combine is in the nature of the atoms. Kanada himself did not go so far as to visualise his atoms in a perpetual motion. The postulation of a motionless state of isolated atoms required the additional postulate of the action of the "unseen principle". The commentator Upaskar removed the defect. According to him, extension, that is, perceptible matter, is caused by the principle of *"dvitva"* inherent in the primal matter; it is a natural propensity of two atoms to unite. Indeed, the commentator makes clear an idea to be found in the Sutras themselves.

However, in assuming the superfluous non-inherent

cause, Kanada did not contradict himself any more crassly than did, much later, the fathers of modern science like Copernicus, Galileo, Descartes, Newton and others who .paid homage to the prejudice about God, even when they deprived him of all functions. To-day it is not possible to say whether Kanada himself believed or not in the necessity of the obviously superfluous assumption of the non-mherent cause. Even if he did, that would not affect the real implication of his hypothesis, which was purely materialistic.

Kanada's system makes no room for the soul in the metaphysical or spiritualist sense of the term. According to it, intelligence is not an inherent property of the soul; it is conceived as a mere adventitious quality of the atoms, .arising only when the soul is joined with an internal organ. Kanada argues: The qualities which inhere in the substance, constituting the cause, originate qualities of: the same kind in the substance constituting the effect. 'Hence, if the intelligent Brahman is assumed as the cause of the word, we should expect to find intelligence inherent in the effect also, in the world. This is not the case. Therefore Brahman cannot be the cause of the world. Consciousness is thus regarded as the product of a complicated combination of atoms. Soul is merely the disposition of organism, which is a combination of matter. At a certain stage of combination, an atomic aggregate acquires the property of receiving impressions of external objects and reacting to them. Consciousness develops at that stage. The constituents of the "soul" of the Vaisheshik system are inherent in the substance which constitutes the organism. And that substance is composed of atoms, which again are only of four kinds—of water, earth, air and fire.

Moreover, while disputing the immateriality of spirituality of the soul, Kanada himself throws overboard the superfluous assumption of the non-inherent cause. He categorically declares that the Brahman cannot be the cause of the world. And in another place, he declares

equally categorically that the atoms are the cause of the world. The early Indian metaphysicians regarded Brahman as an intelligent being or an intelligent principle.. The materialists combatted that conception. They couki do so because they did not require the postulate of an external intelligence or force to give the first impulse for the origin of the world. Therefore, their materialist speculation was self-contained, the formal inclusion of the concep-tion of Brahman or non-inherent cause was only a matter of prejudice or conformity with venerable traditions.

The Vaisheshik system was condemned by the orthodox as "semi-destructive" or "semi-nihilistic", because of its dynamic view of nature. It regards nature not as a being but a process of becoming. It held that the continuous change in the size of bodies involved continuous perishing ol the old and continuous rise of new substance. Even the idea of the indestructibility of matter is anticipated.

As a matter of fact, Kanada's atomism was even more self-contained than that of Democritus. By visualising the atoms as possessing the inherent property of coalescing and combining, it was free from the fallacy which opened the Democritean system to Aristotle's attack. Kanada's system was to a large extent free from the problem of action at a distance. In his time, it was the dominating current of thought. The Vaisheshik atomism was the common point of departure of a whole series of speculative thinkers, whose contributions to the spiritual heritage of India approximated real philosophy, and tried to free Indian society from the domination of the Vedic priestcraft. Nevertheless, the unnecessary assumption of a metaphysical cause was due to the priestly prejudices from which the main currents of materialist and rationalist thought in ancient India could not liberate themselves. The social conditions that caused in Greece the evolution of thought from natural religion to the materialist philosophy, did not ripen in India. Intellectual life remained a priestly monopoly. The result was the weakness of the scientific and rationalist thought which,

therefore, was eventually overwhelmed, and even its records were practically all destroyed, by the triumphant Brahmanical reaction.

Although the fundamental principles of ancient Indian materialism were stated originally in the Vaisheshik system, the dominating position in the intellectual life of that period came to be occupied by the Sankhya system of Kapila. The latter deviated largely from the strictly materialistic ground, and developed rather as a rational-naturalist system of metaphysics. Nevertheless, the physical principles of materialism were elaborated philosophically by Kapila. He is known as an atheist who maintained that the existence of God could not be proved by logical evidence. But the real merit of his philosophy is the recognition of the objective reality of the physical world. The Sankhya system decidedly rejects the doctrine that the external world has no objective existence, and that nothing exists but thought. Arguing against some earlier philosophers, who are characterised by the commentators as "heretics" or "nihilists", Kapila lays down: "Not thought alone exists; because there is the intuition of the external world." "Then, since, if the one does not exist, the other does not exist, there is a void."*

The most authoritative commentator, Vijnana Bhikshu, interprets the Sutras as follows: "The reality is not thought alone; because external objects also are proved to exist, just as thought is, by intuition. If external things do not exist, then, a mere void offers itself. Because, if the external world does not exist, then, thought does not exist; for, it is intuition that proves the objective; and, if the intuition of the external did not establish the objective, then, the intuition of thought also would not establish the existence of thought."

The analogy with the point of departure of Descartes' rationalism—*"Cogito, ergo sum"—is* obvious. But there is more than pure rationalism. The theory of cog-

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*Book I, Sutras 42 and 43.

nition is definitely materialistic. The underlying principle of the Sankhya theory of knowledge is identical with the modern materialist principle that consciousness is determined by being. The defenders of the religious doctrine of creation tried to silence the enquiry about the origin of things by denying the reality of the world itself. They argued that a thing of dream—an unreality—did not need a substantial origin. Kapila retorted: "The world is not unreal; because there is no fact contradictory (to its reality), and because it is not the (false) result of depraved senses (leading to a belief in what ought not to be believed)." This is clear enough. But Kapila goes farther—to the extent of stating the fundamental principle of the rationalist-materialist view of the world. "A thing is not made out of nothing."*

The bottom is knocked off the doctrine of creation. The origin of the physical world is traced to an endless process of causality, and that process is inherent in nature. Existing eternally by itself, the world does not need a creator or creation. Nor is there any beginning. Because, in that case also, something would come out of nothing. Thus, the Sankhya system rejects even "emanent teleology", a doctrine made fashionable by some philosophers of our time.

The materialist essence of the Sankhya system is confused by its apparent rejection of atomism. But the very argument advanced for the purpose implies a more perfected form of materialism: "What is limited, cannot be the substance of all." Together with the Vaisheshik, the Sankhya system also reduces the "gross elements" 10 atmos; but Kapila traces the severally existing atoms down to a still simpler all-pervading substance. This is very much the same as done by Aristotle; but there is no evidence whether he resorted to this expediency to avoid the baffling problem of action at a distance. However, by seeking the ultimate substance beyond the atoms, Kapila

*Book I, Sutras 78.

anticipated the most modern conception of substance instead of rejecting materialism.

Kapila visualised existence as a hierarchy, so to say, composed of twenty-five realities. In addition to the soul, nature, mind and self-consciousness, there are "subtle" elements, sense organs and "gross 'elements". The pyramid stands on the apex. Reverse the order, and you have a process of evolution. But Kapila conceived the process in the Hegelian fashion: as "Idea expressing itself". Although the process of evolution is set on its head, the "realities", however, are derived inductively from the immediately perceptible gross elements. The existence of the "subtle elements" (sound, colour, touch, taste and smell) is inferred from the "gross elements" which are directly perceptible. The logic is obvious: Everything that is gross, is formed of something which is less gross. The process is traced to the primal state of nature in which everything lies in a state of inaction. But Nature is not only eternal, but self-operative. "Since the root has no root, the root is rootless."* Thus, Nature is the Final Cause. Since mind and self-consciousness are placed within the scheme of nature, they are included in the materialistic system. Only the soul stands outside, but like Newton's *deux ex machina,* it is completely unnecessary for explaining the feeing and becoming of the world. The existence of nature is inferred from its perceptible phenomena. These are real; they must therefore have a real cause. That is to say, the constituents of the world exist eternally. Those ultimate elements are called, in the Vaisheshika and Nyaya systems, atoms. Kapila reduces them to an all-pervasive existence, and calls it the Nature in a state of inaction.

The Nature of the Sankhya in its primal state is like Spinoza's "beseelte Materie" (animated substance). Three qualities (goodness, passion and darkness), inherent in nature, are the lever of all natural operations. Atomism

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*Book I, Sutras 114 and 115.

is rejected, because pain and pleasure are not properties of the atom. Everything in existence is an aggregate o£ pain, pleasure, delusion etc. which are clearly perceptible.. But here arises a very pertinent question: What is the cause of these categories or qualities? Kapila himself asserts that something cannot come out of nothing. Obviously to avoid this dilemma, he makes his Nature an alk pervading primal substance, having the three qualities in a state of equilibrium. The atomists would contend that the atom could just as well represent the equilibrium of[1] qualities. However, Kapila's rejection of atomism leads-him to a position where the materialness of Nature appears to disappear. The primal existence appears like the Brahman of the Vedantist, or the Hegelian Non-Being —Absolute Nothing. But that is far from what Kapila desires to establish. Therefore, he concludes his arguments against atomism by reaffirming the materialness of Nature.

"Nothing can be produced from a non-entity like man's horn."

"There must be some material of which the product may consist."*

The Sankhya system, with its rigid rationalism, cannot do without a material substratum of the world. Because, if that is dispensed with, everything may happen everywhere, which is an absurdity according to itself. Consequently, the Sankhya conception of primal nature cannot be essentially different from the conception of "matter in motion". Its rejection of atomism, therefore, could not be a repudiation of materialism; it was done with the motive of making the physical explanation of the world free from all possible logical fallacies. An all-pervasive primal substance obviate the difficulty of original combination, and consequently, for securing the first impulse, the postulate, the postulate of a metaphysical agency is not necessary.

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* Book I, Sutras 114 and 115.

Indeed, a mechanistic conception of nature is not only logically inherent in the Sankhya system, but becomes explicit in the definition of the properties of the *"Pradhan".* Kapila holds that just as mother's milk and water now mechanically, just so "the *Pradhan* also, although non-intelligent, may be supposed to move from its own nature." Motion, as distinct from conscious movement or intelligence, is thus clearly visualised as inherent in the *Pradhan,* which is the name for the all-pervading material substratum of the world. This again shows that (he metaphysical elements in the Sankhya system are altogether superfluous, the system being self-contained as a mechanistic-materialist conception of the world.

As regards the soul, it is explicitly ruled out as the Final Cause of things; and the obvious logical deduction that the origin of things is material, is clearly drawn from the superfluity of the conception of soul.

"While both (Nature and Soul) are antecedent (to all products), since the one (Soul) is devoid (of this character of being a cause), it is applicable only to the other of the two (Nature)."*

Having divested soul of all qualities, and ascribed to nature all active properties and the status of the Final Cause,.Kapila finds it very difficult to prove how the non-discrimination between the two originates. The difficulty lies in the fact that his conception of the Nature as a self-operative entity renders soul only an empty conception— a concession to traditional prejudice. He extricates himself from the position by going still another step farther away from metaphysical dualism towards materialistic monism. Understanding, mind, reason, and even ego, are all discriminated from the Soul as products of Nature. Thus, the Soul is left without any function. Indeed, by its very nature (absolute, immutable etc.), it cannot have any connection with anything. Thus, there is an unbridgeable gulf between the two ultimate categories

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*Book I, Sutras 75.

of existence. The gulf could be bridged only by abandoning the dualist position. It is difficult to ascertain if Kapila himself did that. The Sutras are not very clear on the point. One of the commentators cuts the Gordian knot.

"These two (Nature and Soul) are alike without antecedent, like seed and sprout of which it is needless to ask which is the first; the old puzzle, which was the first, the acorn or the oak? being a frivolous question."

The relation between Soul and Nature *(prakriti* and *purusha)* thus interpreted, the Sankhya system becomes free of the dualist fallacy, and stands out as a self-contained materialist system. Either simultaneous existence of the two uncreated beings is admitted, or Soul ceases to exist except as an attribute of Nature. Then, the logic of "seed and sprout" is faulty. The removal of this logical defect leads to monism. Of the Soul and Nature, one must be the cause of the other. By its very nature, the Soul of Sankhya cannot be the cause of creation; because, in that case, it would cease to be what it is and could never be emancipated. So, there remains Nature as the only real source of existence, and Kapila conceives Nature as a purely material entity, self-originating and functioning mechanically. Even the so-called vital forces are the products of the mechanistic operation of the material entity, Nature.

The most important contribution made to the development of philosophical thought by the Sankhya system, however, is its sensationalist theory of knowledge. Kapila was an out and out empiricist. He holds, with an admirable logical rigour, that sense perception is the only reliable source of knowledge.

"Determination (light apprehension) of something not previously known is right notion (knowledge). What is in the highest degree productive thereof, is evidence."*

Evidence is denned as perception, inference and

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*Book I, Sutras 87.

testimony (scriptural). By admitting inference in the category of evidence, Kapila anticipated the rise of inductive logic. His contribution to the scientific mode of thought, therefore, is very considerable. The above Sutra is interpreted by one of the commentators as follows: "The proof or evidence, or whatever we may choose to call that from, which right notion results, is just the conjunction of an organ (with the appropriate object)."

The Sutras themselves are very categorical about the role of perception in the process of acquiring knowledge. A decisive answer to the questions raised even by modern epistemological nihilists was given by Kapila.

"Perception is that discernment which, being in conjunction (with the things perceived), portrays the forms thereof."*

It is held that the organs (external, that is, of perception, and internal, that is, of inference) are products of Nature. They are not "depraved"; that is, they do not portray as real what is not real. Therefore, whatever is established on their evidence, is real. Since the organs bear testimony to the existence of the external world, its reality is established.

While the Sankhyas thus expounded an atheistic naturalism, the Vaisheshik and Nyaya, systems tended clearly towards materialism. That very significant evolution of thought out of the background of the Vedic religion and the metaphysical speculations of the Upanishads, in the fulness of time ushered in the Golden Age of India, that is, the Buddhist period. The latter Upanishads and early Buddhist literature are full of references to "heretics, atheists and materialists".

When Buddha was a young man, the great halls and vast forests of northern India were echoing with disputations denying the divine origin of the Vedas and the authority of the Brahmans, and preaching agnosticism, atheism and materialism. And it was during the several

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*Book I, Sutras 89.

centuries of the Buddhist era that India really attained a very high level of material and moral culture.

The long process of the development of naturalist, .nationalist, sceptic, agnostic and materialist thought in ancient India found culmination in the Charvak system of philosophy, which can be compared with Greek Epicureanism, and as such is to be appreciated as the positive outcome of the intellectual culture of ancient India. The greatest of the *Paribrajaks* mentioned in .the earliest Buddhist literature, those Sophists and Stoics of ancient India, was one Brihaspati.* He was the founder of Indian Epicureanism—the Charvak system. The Brihaspati Sutras are referred to frequently in contemporary Buddhist and Brahrnanical texts. But only some remnants of the Sutras themselves survived the downfall of Buddhism. From them we learn that Brihaspati condemned Brah-mans as "men devoid of intellect and manliness, who uphold the authority of the Vedas because they yield them the means of a comfortable livelihood."

The Charvaks laughed at the notion that the Vedas were divinely revealed truth; they held that truth can never be known except through the senses. Therefore, the idea of soul is a delusion. The Charvaks thus anticipated the modern philosophical thought of ultra-empiricism. They held that even reason was not to be trusted, because every inference deperrded for its validity not only on accurate observation and correct reasoning, but also upon the assumption that the future would behave like the past, and of this there was no certainty. That was

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*The name Brihaspati occurs in the ancient Indian literature frequently in various connections over a period of many hundred years during which naturalist, rationalist and materialist thought developed and wielded a considerable influence. Brihaspati is mentioned as the founder of *Swabhavabad* of *Loknyata* and also of the Charvak system. While it is quite possible that Brihaspati was a legendary figure, it also proves a continuity of naturalist thought.

anticipating modern agnosticism more than two thousand years before Hume. But the Charvaks were not mere nihilists, agnostics and sceptics. They developed an elaborate system of positive philosophical thought.

"All phenomena are natural. Neither in experience nor in history do we find any interposition of supernatural fortes. Matter is the only reality; the mind is matter thinking. The hypothesis of a creator is useless for explaining or understanding the world. Men think religion necessary only because, being accustomed to it, they feel a sense of loss and an uncomfortable void when the growth of knowledge destroys faith. Morality is natural; it is a social convention and convenience, not a divine command. There is no need to control instincts and emotions; they are commands of nature. The purpose of life is to live; and the only wisdom is happiness."

As the composite outcome of all the positive elements in the whole previous history of Indian thought, Buddhism shook the very foundation of the hoary edifice of Brahmariical orthodoxy. It disputed the authority of the Scriptures; vigorously condemned the sacrificial rites and rituals of the Vedic Natural Religion; it denied the existence even of an impersonal First Cause (the Brahman of the Upariishads); and is discarded as the doctrine of Soul. For the first time, there began to develop in India a system of truly philosophical thought, having for its point of departure the atomism of the Nyaya-Vaisheshik system and the rationalist-mechanistic conception of Nature contained in the Sankhya system.

Moreover, the Buddhist philosophers, particularly of the "realist" *(Sarvastitvavadins)* and the "nihilist" *(Sunya-vadins)* schools, took over the sceptical views of the earliest ideological rebels who preceded the formulation of the materialist systems of the Vaisheshiks and Sankhyas. But the so-called "nihilism" of the Buddhists is to be traced back directly to the dialectic view of nature: that the continuous change in bodies, owing to atomic combination and separation, necessarily involves a continuous process

of the old perishing and the new growing. This dynamic view of nature was formulated in the Vaisheshik system, and subsequently elaborated by Kapila, who, notwithstanding his unnecessary metaphysical deviation, was essentially a materialist.

The Buddhist "nihilists", however, did not reduce everything to non-existence as had been done by the older nihilists. The Buddhists visualised everything in an endless process of constant flux. They challenged the notion of an eternal, changeless, absolute existence. The logical consequence of their dynamic view was the rejection of the dogma of the Absolute Truth revealed in the Vedas. All the three schools of the Buddhist philosophy (including the Idealists—*Vijnanvadins)* taught that every existence is momentary—in a state of eternal flux. Their doctrine controverted the basic assumption of the orthodox Hindu philosophy of the Vedanta system.

On the basis of the materialistic and quasi-materialistic Vaisheshik and Sankhya systems, Buddha reversed the relation between the spiritual and material beings. As a consequence of the reversal of the order of sequence, their relative values were also revaluated. Buddha held that soul is a bye-product of the very being of man, governed by the laws of nature. Thus differentiated from, and contrasted with, "the spiritual" being could only mean physical being. The Buddhist conception of individual consciousness does not carry with it any assertion or implication that "the Ego" exists or is, in any way, a reality. What really exists, according to Buddhism, is *sanskaras;*— activities and impressions man receives in course of these activities. The *sanskaras,* again, work out in a casual series. The soul does not inspire the activities of man's life; on the contrary, it is the sum total of impressions accumulated by organic activities.

The materialist essence of Buddhist philosophy, although couched in an ethico-idealistic terminology, stands out in a clear relief under the fierce attack of its-Brahmanical opponents. Sankaracharya, for example,

exclaimed in exasperation: "Thus, blind karma is permanent, having the power to produce an infinite number of conscious individuals—souls!" A correct evaluation of consciousness, which implied devaluation of the soul, the denial of its spiritual nature, and precedence over physical being, led Buddha to do away with the belief in God, who can be conceived *philosophically* only as the "Universal Soul". For the solution of die question of life, Buddha found that belief in God was useless. Since the existence of God, as the spiritual cause of the Universe, can be established only upon the assumption of the extra-materiality of human consciousness, the rejection of the doctrine of soul necessarily leads to the denial of God. God cannot be reached except through the doctrine of soul.

The Realist school of Buddhism defines the existence of a thing as its causal efficiency. According to this essentially materialistic doctrine, the existence of an abstract principle cannot be proved. The Nihilist school is deduced from the Realist. It holds that, since everything is being constantly destroyed, a void—non-existence—is the cause of everything. According to Sankaracharya, they preached the following doctrine: "Nothing can become a cause as 'ong as it remains unchanged, but has to that end undergo destruction, and that thus existence springs from non-existence only". The Buddhist Sutra itself is: "On account of the manifestation (of effects) not without previous destruction (of the cause)." The seed must decompose, become non-existent *as seed,* before the plant can grow. The world is thus visualised as a self-originating, dynamic process. There is no difference between the Realists and the Nihilists, if their common materialist essence is divested of scholastic sophistry.

Buddhist materialism was based on Vaisheshik atomism. It can be summarised as follows: There are two aggregates of existence—external (material) and internal (mental). But mind presupposes the existence of an atomic combination. The external, composed of the "elements" *(bhuta)* and "elementals" *(bhautika),* embrace the outside

nature as well as the gross bodily organs. The former is made of elements which are earth, water, fire and air. These, in their turn, are formed respectively of the different kinds of atoms; whereas the latter are made of the "elementals", that is, diverse combinations of the elements.

Since mind and things mental are conditional upon the existence of an atomic aggregate, the "internal" is evidently not an independent being; it grows out of the "external". In other words, the mental is derived from the material. This is further evidenced from the division of the "internal" into five groups *(.skandhas).* They are sensation, knowledge, feeling, verbal knowledge and impression. These are all diverse functions of the bodily organism—an aggregate of atoms. No school of Buddhist philosophy admits the existence of any extra-natural or metaphysical intelligence, such as God or Soul, which might bring about the first aggregation of atoms. Therefore, atomic combination must be visualised as a mechanical process out of which the so called "internal", that is, the intelligent part of existence, arises.

But the Buddhist philosophy stopped short of this logical conclusion from its own premises. The reason o£ that short-coming was the idea of *"Nirwana",* which was the characteristic feature of a psychological condition created in an atmosphere of social dissolution. The world is full of sorrows and miseries. One must run away from it. The cardinal principle of Buddhism, namely, *"Nirwana",* contradicted the entire system of Buddhist philosophy. Sankaracharya pointed out that contradiction. Nor can the atoms and *skandhas* be assumed to enter on activity on their own account, for that would imply their never ceasing to be active." The ideal of *"Nirwana"* is the cessation of all activity. According to the Buddhist mechanistic view of nature, atoms and their aggregates are auto-active. Therefore, as Sankaracharya pointed out, their activity can never cease. The material world is eternal.

The ideal of *"Nirwana"* represented the nihilism of

Buddhist philosophy. It was the quintessence of the ideology of social dissolution. The positive materialist character of Buddhism made it victorious, for a time. But eventually, it was bound to be overwhelmed by its own contradictions. Buddhism was the product of the social conditions of the epoch. It was the ideology of those who could not deny the effects (pains etc.) of the material existence. For the multitude, the conditions of social dissolution only meant pains. So, that was the effect of their material existence. On the other hand, the initial triumph of Buddhism was due to the fact that it secured the adhesion of a rising class which rejected the Brahnianic dogma of other-worldlines? According to Sankaracharya, Buddha himself was an idealist. Nevertheless, he propounded a realistic philosophy, "conforming himself to the mental state of some of his disciples." It is recorded that hundreds of merchants were associated with Gautama.

The idealistic deviation of the Buddhist philosophy was caused by its having enlisted the patronage of the upper classes. In order to refute the Brahmanical dogma of the Eternal Truth, the rebels expounded the doctrine of the momentariness of everything. In course of time, the doctrine of temporariness was applied not only to the physical, but also to the mental phenomena. The adverse effects of the social existence, pain, sorrow, etc., were also declared to be momentary. One step farther, and Buddhist philosophy shifted its moorings from materialism to idealism. What is momentary, is not real; therefore, pain etc. are but ideas which have no objective causes. They are only mental states. There does not exist anything but ideas. But the other cardinal principle of the Buddhist philosophy could not be altogether discarded. The phenomenal world is without a beginning; but ideas also have always existed in a chain of mutual causality. They do not need any external object. They are self-existing.

The idealist deviation rendered Buddhism

susceptible to Brahmanical influence. The Mahayan School became a replica of Hindu ritualism. Nevertheless, Buddhist idealism retained its philosophical character as against the theological nature of the Brahmanical metaphysics. It never denied the existence of the world; it vaguely came near to the modern philosophical conception of the identity of the object and subject.

The preoccupation with the idea of *"Nirwana"* involved Buddhist philosophy into a maze of metaphysical speculations. In that realm of pure fantasies, the Brahmin scholastics not only held their own, but before long turned the table. Sankaracharya had no difficulty in proving that the entire system of the materialist-rationalist Buddhist philosophy was incompatible with the doctrine of *"Nirwana"*. The priestly monopoly of ideology was reasserted after it had been shaken by the Buddhist Revolution.

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The dynamic view of nature attained a high degree of clarity with the Jains. The dialectic logic developed by the Jain philosophers was later on condemned by Sankaracharya as "an unsettling style of reasoning". It was, indeed, unsettling for the rigid orthodox logic which set up an imaginary absolute standard. Once the absoluteness of the standard of truth is disputed, the whole airy structure of doctrines and dogmas, reared upon that foundation, necessarily collapses.

The Jain philosophers maintained that contradictory attributes, such as being and non-being, could belong to one and the same thing. They subjected the conceptions of absoluteness, unity and eternity to their "unsettling style of reasoning". The result was rejection of the doctrine of the Brahman. The disruptive effect of their views and methods of reasoning can be judged from the charge Shankaracharya brought against them: "If you maintain that the heavenly world and final release exist or do not exist, and are eternal or non-eternal, the absence

of all determinate knowledge, which is implied in such statements, will result in nobody's acting for the purpose of gaining the heavenly world and final release."

The Jains also believed in Soul; but they conceived it as a constantly changing entity—something very different from the orthodox "simple and immortal" divine spark in man. They thought that soul was composed of an infinite number of particles—"soul-atoms"—which was constantly increasing and decreasing. That, in their opinion, did not affect the permanence of the soul; for, a thing can be permanent and non-permanent at the same time. For example, although the water is constantly flowing, the stream of water is always there. The ontological - counterpart of this logic is obvious: The phenomenal world is permanent and real with all its continual changes and transitoriness.

In the antique period, as well as in the middle-ages, Indian society never quite reached a level of evolution where the power and position of the priesthood could be successfully disputed by a new social class which, by its very nature, would be the standard-bearer of scientific thought and thus lay down the foundation of philosophy.

The distinctive feature of Indian speculation, common to all schools, including even those materialist and quasi-materialist ones, some records of which have come down in history, is the anxiety to find release from the' bondage of the life in this world. This morbid conception of life originated in the chaotic and depressing conditions resulting from the disintegration of the antique social order. The picture of social conditions towards the close of the Epic Era, as depicted in the Mahabharata, is anything but bright. Such conditions were sure to beget pessimism as well as revolt. Legends, recorded in the Mahabharata, testify to the rise of the forces of revolt, which sometimes were too powerful for the weakened Kshattriya ruling class. But that was an elemental movement, rather actuated by despair than inspired by the ideal of a new social order.

Pessimism was the prevailing spirit. All the schools of Indian speculation bear the stamp. All look upon, nature as a source of bondage; the freedom was not to be had by bursting the bondage, that is, by conquering nature, but by the easier, imaginary way of running away from the "evil". The idea of conquering the external nature never entered Indian speculation. Therefore, it could not ever attain the level of real philosophy. Self-mortification is not the conquest of nature. It is to block all the ways of knowing external causes. It means plunging into the dark ocean of blissful ignorance.

Self-mortification, however, had no place in the primitive Vedic religion which, like all natural religions, was "materialistic" in the vulgar sense of the term. Pessimism, begotten in the chaotic and miserable conditions of the disintegration of the tribal society, was seized upon by the priestly ruling class as the opportunity for expounding the pernicious doctrine of renunciation and self-mortification which became such an effective weapon in the struggle for maintaining their dominating position. Life is full of miseries, because the desires of man can never be satisfied. Control the desires, you will be free from the evils of nature, and all misery will cease. Eternal bliss will be yours. The triumph of this "spiritualist" view of life reflected a tremendous social reaction which, in its-turn, deeply affected speculative thought for a long time to come. Even revolutionary Buddhism could not fully live down that corrupting tradition of a previous social reaction, and was eventually vitiated by the poison. The triumph of the doctrine of self-mortification as the way out of the miseries of life represented the defeat of the forces of dissatisfaction with, and revolt against, the established order of things.

The discontent with things as they are is the condition for their change. The replacement of discontent by resignation, of revolt by indifference, means stagnation of social energy. All striving for material progress ceases, and ideological evolution is correspondingly affected. The

triumph of the reactionary priesthood in the class struggle of remote antiquity determined the peculiar feature of Indian speculative thought. The triumph of reaction, in its turn, was possible because there had not yet arisen a class which could lead Indian society out of the crisis resulting from the downfall of the tribal social order. In course of time, the relation of classes changed. More or less disruptive schools of speculation flourished. But they all bore, in a greater or lesser degree, the distinctive stamp which signified a very slow process of social evolution, and the consequent continuation of sacerdotal supremacy.

The urges of life compel man to take up the endless struggle with nature. In course of this struggle, man penetrates deeper and deeper into the mysteries of the Universe, and progressively these mysteries cease to be mysterious. Primitive empiricism gives birth to philosophy; philosophy is the mother of science, and finally science enthrones the venerable mother as the "science of sciences". The taboo on the joy of life, the perverse prejudice against the natural urges of life, emasculates man. It holds him back from the mission, given to him by his very being. Consequently, it precludes a free spiritual evolution. Man creates science and philosophy; when the conditions of his social existence set limits to his human existence, his thoughts are naturally distorted. Indian speculation presents such a picture of distorted thought.

Therefore, the rationalist, materialist and naturalist teachings of Kanad, Kapila, Brihaspati, Gautama, Mahabir, and others were ultimately buried under the ruins of the Buddhist revolution. Brahmanical reaction, reasserting itself in the scholasticism of Sankaracharya, choked all spiritual progress so successfully that a renaissance of the ancient liberating thought was delayed until it was too late. The Hindu ruling classes were so exhausted by the delirium of having overwhelmed a mighty revolution, that the country became an easy prey to foreign invaders. General prostration and stagnation, on the other hand, precluded the

rise of new social forces corresponding to those which rescued Europe from the darkness of the pious and spiritual middle-ages.

Whatever record exists about the various schools of philosophical thought in ancient India, bears testimony to the fact that dissatisfaction with the Vedic Natural Religion gave rise to speculations about the origin of the world, which inevitably developed tendencies to explain the world in physical terms. In India also, physics preceded metaphysics. Much of the really philosophical thought of ancient India has unfortunately been lost. But from the fragmentary evidence recorded, that forgotten chapter of the spiritual history of India can be reconstructed. As everywhere, originally, in India also philosophy was materialism. The materialistic outcome of the speculations of the rebels against the Vedic Natural Religion, contained in the three systems of philosophy proper, namely, Vaisheshik, Sankhya and Nyaya, provided the inspiration for the greatest event in the history of ancient India—the Buddhist Revolution. The spiritual development of India during nearly a thousand years, beginning from the seventh century B.C., was very largely dominated by materialist and rationalist tendencies. It is highly doubtful whether the Vedanta system was formulated before the end of that Golden Age of Indian history. Internal evidence clearly proves the opposite case. The main purpose with which Vedantist pantheism was developed was to combat the materialist systems of Kanad and Kapila as well as the revolutionary doctrines of Buddhism and the unsettling logic of the Jains. That being the case, it is permissible to maintain that in ancient India, until the fall of Buddhism, philosophy was largely materialistic. Even as late as the fourth century A.D., in the period of triumphant Hindu restoration under the Gupta dynasty, the Chinese traveller Fa Hien found in India no less than "ninety-six heretical sects, all of whom admitted the reality of worldly phenomena."

Sankaracharya constructed his rigidly logical, but

philosophically ambiguous system of monism for combatting Buddhist idealism. But the real enemy he had to contend with was the materialist traditions of the pre-Buddhist philosophy. His works are full of long polemics against materialist and naturalist doctrines, so much so that the fragments, profusely quoted by him, can serve as a reliable foundation for reconstructing the latter.

The following can be reconstructed as the summary of the "atheism and materialism" that Sankaracharya combatted, from fragmentary evidences contained in his own works:

Religious doctrines are all meaningless words. Their foundation is the idea of God whose very existence cannot be proved. The God is the Creator, but he has no origin. If it is admitted that there must be a Creator and ruler of the world, then, there arises the question: Who created the Creator? Whence did he come? The Creator is said to be without beginning and without end; without any limit. But, after all, he is a Creator, which implies a personality on his part. The God is, indeed, considered to be the Creator. But a person cannot be without beginning and end and other limits. If the God is limited, then, is it not possible that there may exist a power over and above him? The God is believed to be all-powerful and all-pervading. But these attributes of the God cease to be what they are believed to be, as soon as they are imagined by man. Thus, the essence of the God, the Creator, disappears. Then, it is taught that desire is the cause of creation. From this, it follows that God himself-is not free from desire. Further, if the Universe is created by the Will of God, then, God himself must have the feeling of want; for, wish grows out of want. The feeling of want destroys omnipotence, omniscience and all other superhuman attributes ascribed to the God.

What has come down to us as the most authoritative and representative Hindu philosophy, was the creation of Sankaracharya. He was the ideologist of the Brahmanical reaction and patriarchal sacerdotal society which were

re-established on the ruins of the Buddhist revolution. But all Sankaracharya's efforts for liquidating the traditions of the really philosophical thoughts of ancient India were a failure. This very important fact of the spiritual history of India is not realised. Yet, it is obvious from a critical study of Sankaracharya's work. He failed to meet the materialists on their ground. He could not refute their arguments. He had to fall back on the authority of the Scriptures, the repudiation of which had been the starting point of all philosophical thought in ancient India. Of all the great ancient rationalists, Kapila alone had admitted scriptural testimony as evidence. But that was only a formal concession. While declaring that the existence of God could not be proved, because there was no evidence, Kapila does not take scriptural testimony into account. Even the Vedanta Sutras themselves do not accept the Scriptures as answering all the questions raised by those dissatisfied with the dogmas of natural religion. "Not having found the highest bliss in the Vedas, Sandilya studied the Sastras."* The latter contain primitive rationalism which rejects the childish faith of the Vedic religion.

So highly developed and powerful were the materialist and naturalist schools combatted by Sankaracharya, that, whenever he tried to refute their arguments logically, he was driven to take up an essentially materialistic position. His pantheistic monism is inverted materialism. The Mayavad is a shame-faced recognition of the reality of the external world. It is only by degenerating into a dogmatic system of theology, which tries to reconcile even the gods of the Vedic natural religion with the metaphysical conception of Brahman, that Sankaracharya's system apparently escapes the glorious fate common to all systems of consistent pantheism. The fate is to corroborate the materialist view from the opposite direction.

Sankaracharya begins his commentary of the

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* Bhagvata

Vedanta Sutras with the assumption, that it is a matter not requiring any proof that the object and the subject are opposed to each other as much as darkness and the light are, and therefore cannot be identical. Starting from this absolute dualistic conception, his monotheism could be established only by the absurd sophistry of the doctrine of *Maya*. In order to establish the "reality" of an existence, which is simply assumed, and which, by its very nature, as well as admittedly, cannot be proved, the perceptible and provable existence is declared to be an illusion. The Brahman is associated with a certain power called *Avidya* which is the cause of all the appearances of the world. This power cannot be called "Being", for Being is only Brahman. But immediately it is also admitted that it cannot be called "non-being"; for, at any rate, it produces the appearance of this world. It is in fact a principle of illusion: the undeniable cause, owing to which there seems to exist a material world. *Maya* thus constitutes the *Upadhana*, the material cause of the world. It belongs to the *Brahman*, as a *Sakti*. The material cause of the world is *Brahman* in so far as it is associated with *Maya*.

This doctrine obviously contradicts the conception of Brahman as a unitary and absolute existence. Brahman is destitute of all qualities; it is devoid of all attributes—thought, activity etc. Yet, *Maya* is assumed to be its *Sakti*, Moreover, *Maya* is conceived as an existence parallel to *Brahman*. The idea of "association" presupposes two entities; similarly, that of belonging. Since it is admitted that *Brahman* may be regarded as the material cause of the world, it cannot be an immaterial entity. Two qualitatively different things can never stand in relation of causality. On the other hand, if the position of *Brahman* is not compromised by placing it in a relation of causality with the material world, then, the latter must be granted an independent existence. Whatever may be its cause, the *Brahman* cannot be its origin. Sankaracharya gets out of this difficulty by falling back on

religion. He argues: "If it be objected that on the Vedanta doctrine there is no room for a moving power, as in consequence of the oneness of Brahman no motion can take place, we reply such objections by pointing to the fact of the Lord being fictitiously connected with *Maya.*" This sort of argument carries little conviction to those who do not start from the fundamental dogma of religion. To begin with, the material world is dismissed as an illusion. The "real" existence has nothing to do with it. Then, the question about the moving forces of the phenomenal world is answered by asserting dogmatically that the metaphysical entity Brahman becomes a personal God and maintains a fictitious connection for causing the phenomenal world. All these curious devices and grossly fallacious arguments were adopted to combat materialistic monism.

The unreality of the phenomenal world is the fundamental dogma of the Vedanta system. But in order to refute the idealistic school of Buddhism, Sankaracharya himself rejected the very dogma. The Buddhist idealists held that cognition was exclusively an internal process; not that it had no connection with the external object, but that it was self-contained; the external objects existed -only in their relation to the mind. The substantial residue of objects is atoms, the rest being form; but the atom cannot be conceived by mind.

In combatting this doctrine, Sankaracharya writes: "The non-existence of external things cannot be maintained, because we are conscious of external things. Why should we pay attention to a man who affirms that no such thing exists?" Why should we, then, take Sankaracharya seriously when he talks of *Maya?* He proceeds:'-"That the outward thing exists apart from consciousness, has necessarily to be accepted on the ground of the nature of consciousness, Nobody, when perceiving a post or a wall, is conscious of his perception only; but all men are conscious of posts and walls as objects of their perceptions. Even those who contest

the existence of external things, bear witness to their existence when they say that, what is an internal object of cognition, appears like something external. No one says that Vishnumitra appears like the son of a barren mother. If we accept the truth as it is given to our consciousness, we must admit that the objects of perception appear to us as something external. Because, the distinction of thing and idea is given in consciousness; the invariable concomitance of idea and thing has to be considered as proving only that the thing constitutes the means of ideas, not that the two are identical. It cannot be asserted in any way that the idea, apart from the thing, is the object of our consciousness; for, it is absurd to speak of a thing as the object of its own activity. The variety of mental impressions is caused altogether by the variety of external things perceived. This apparent world whose existence is guaranteed by all the means of knowledge, cannot be denied."

Here, Sankaracharya is combatting his whole philosophy. Once the issues are joined on the philosophical ground, the triumph inevitably goes to materialism. When Sankaracharya himself had to expound the above purely materialistic theory of cognition, it is evident how powerful was the current of materialist thought which influenced the spiritual life of ancient India for nearly a thousand years, until the downfall of Buddhism.

The rise and fall of materialism in ancient India approximately coincided faith the same events in Greece. The period of spiritual darkness following thereupon was brought to a close in Europe by the reassertion of materialist and rationalist thoughts on the strength of the achievements of modern science. That did not happen in India. Consequently, the spiritual heritage of India still remains to be rescued from her cultural ruins. What prevented India from following the same course of spiritual development as Europe, after having done that, upto only several hundred years ago, from the remotest days of human history?

In ancient Greece, philosophy was created by the class of merchant-princes, whose social position was antagonistic to the power and privilege of the priesthood. In ancient India, the trading class never attained such a position in society. Self-sufficient village economy prevented the growth of trade on a national scale. The small surplus product of the village artisan was exchanged in local markets. Practically, the entire surplus agricultural produce went for the payment of taxes. It is recorded that during the centuries immediately preceding the Christian era, commodities such as precious stones, spices and silk, were exported from southern India to Greece and Rome. But the maritime trade was carried on by the *Javans* (Greeks), who are reported to have crowded the markets of southern Indian ports, and even been employed as soldiers by the Dravidian kings. Later on, the carrying-trade on the same route passed on to the hand of the Arabs. Foreign trade over-land, developed after the foundation of the Bactrian Kingdom, also was mostly carried on by the *Javans*. Some trade in large volume, how- ever, appears to have grown in the south, which fact explains the establishment and persistence of Hinayan Buddhism (the original philosophical form) in those parts. In the Brahmanical society of the north, development of trade was discouraged. In the earlier Brahmanical laws— of Manu and Kautilya—the trader does not figure as one of the main social classes. In this connection, it will he instructive to cite what. Havell discovers as the cause of the spiritual superiority of Indo-Aryan culture.

"They (Vedas) represent the culture of a race of warrior-poets and philosophers who despised the arts of commerce and lived mostly by agriculture, with one hand on the sword and the other on the plough. They built no temples, but worshipped nature-spirits with simple sacrificial rites. . . . .The Aegean, Babylonian and Dravidian cultures were essentially mercantile civilisations with a more limited spiritual outlook, though in the nature of things, they were more concerned with the happiness which lies in material possessions than in spiritual thoughts."*

When the more civilised Dravidians were subjugated by the pastoral Aryans, the latter imposed upon the former, social laws which checked the growth of the trading class, and consequently of free thought. As regads "the happiness of material possessions", the beef-eating and soma-drinking Vedic priests were not averse to it. But in order to maintain themselves in the position of power and privilege, they could not let the masses participate in lhat happiness. Hence the "spiritual superiority" of the Indo-Aryan culture. The concern for the happiness of material possessions, not in the vulgar sense as was the case with the Vedic Rishis, but in the wide sense of conquering the forces of nature for the benefit of humanity, is the impulse to philosophic thought. Since the "spiritually superior" Indo-Aryan culture of the Vedic era did not feel this concern, philosophy remained unknown until the rise of the more progressive class of traders could not be altogether checked by priestly domination.

Buddhism is usually interpreted as the revolt of the Kshattriyas against Brahmanism. To some extent, it was so; but the mercantile class also entered into the social background of the revolution. For example, according to Hiuen Tsang, the famous University at the great Nalanda Monastery was founded by the munificence "of five-hundred merchants who were disciples of Buddha." The merchants must have attained some social importance under the Buddhist kings. Upon the restoration of Brahmanism, under the Guptas, they were again subjected to economic limitations and social discriminations.

The codes of Manu, compiled in the fourth century A.D., placed the merchants under all sorts of disadvantages. It was from that time, that sea voyage came to be counted as one of the causes of "impurity". The missionary work of Asoka had promoted the habit of travelling

* *Aryan Rule in India.*

over sea. Indian traders had been visiting the Malayan Islands and China. The result must have been a widening of vision which found its reflection in the Hinayan (philosophic) school of Buddhism which for a long time resisted Brahmanic reaction in southern India. Sea voyage was prohibited by Maim because it encouraged heretical views. In the absence of a mercantile class, as an independent and powerful social force, Indian speculative thought could not become philosophy, in the correct sense. And the absence itself was the product of the given social relations. Land was held by the Kshattriyas and the Brahmins—classes which, by their very social being, were hostile to trade. In order to be so powerful as to dispute the ideological monopoly of the priesthood, the free-thinking merchants must grow out of the rich landed aristocracy. But in India, the latter was closely associated with the Brahmins. That relation was established in consequence of the ruinous civil war recorded in the Mahabharata. The Kshattriyas were so seriously weakened that they had to re-admit the supremacy of the-Brahmins. This peculiar complex of social relations determined the specific form of Indian thought, and explains why materialism practically disappeared, after it had flourished so well in an earlier period.

CHAPTER IV

RATIONALISM, MATERIALISM AND IDEALISM

FOR the first ten centuries of the Christian era, Europe lay prostrate under the dismal ruins of the Roman Empire. Whatever economic and intellectual activity was there, was confined to the Church and the monasteries. In contrast to that condition in Europe, trade flourished in the Asiatic and African provinces of the fallen Empire. Those parts of the world had eventually come under the rule of the Arab Muslims who had extended their sway as far as Spain. In the tenth century, Andalusia was the market for all the treasures of the East. It was connected with the distant parts of the vast Muslim Empire with arteries of trade pulsating with the blood of a new life. That quickened intellectual activity rescued from the ruins of the Roman Empire the learning of ancient Greece. It was soon to become the inspiration for the modern civilisation.

The great result of Greek culture, as embodied in the works of Aristotle, was preserved mostly by the Arabs, together with the Jews, to be introduced in Europe not until the twelfth century. Before that time, Aristotle's logic alone had been taken over by Christian learning; but his philosophical and scientific teachings came to Europe through the intermediary of the Arab Muslims. They learned Aristotelian philosophy from the Alexandrian school; there they also learned the scientific doctrines of Hipparchos, Hypocrates, Euclid, Galen and others. Besides, Aristotelian metaphysics and science, Europe also learned scepticism—that solvent of faith—from the Arabs.

Owing to the mixture of Greek, Jewish, Egyptian, Assyrian and Persian culture, the Muslim word, in the earlier centuries of its history, was the seat of cosmopoli-

tanism. So long as peoples live apart, they regard each other's religion as a mass of absurdities—heathenism, heterodoxy, etc. Closer contact breaks down the wall of ignorance. It stands to the credit of Arab philosophers to have conceived for the first time the idea of a "common divine origin" of all religions. They went even farther and made the bold suggestion that all religions represented efforts of human mind to solve the great mysteries of life and nature, and that the effort more reconcilable to reason was the greater and nobler and sublimer. This rationalistic idea of religion attained the highest degree of clarity with Averroes who, throughout the later middle-ages, dominated the intellectual life of Europe.

The thirteenth century opens a new era. The revival of economic life—trade and industry—gave a new impetus to scientific thought. Europe, exhausted by the barbarism of the early middle-ages, turned to antique traditions for inspiration. But they were monopolised by the Church, and corrupted to suit its purpose. The new life, therefore, quickened the antagonism to Christian learning, and welcomed everything that reinforced it in the struggle. The Arabian philosophy came to its aid.

"There had been scepticism (in Europe) before the thirteenth century, but no real incredulity; this doctrine and that doctrine had been disputed, rejected; but the foundation of Christian doctrine had never been touched. It was the foundation which was touched when the idea was reached that all religions have a common ground. This was in the thirteenth century, and may be traced to Arabian influence."*

Theological dogmas no longer satisfied human spirit, in the throes of a re-birth. The certainties of the rising scientific knowledge stood in glaring contrast to the absurdities of theological learning. One by one, the various dogmas of faith were invaded by positive knowledge. There began the process of a radical change in the

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*Lewes, *The History of Philosophy*.

conception of the world. The belief in super-natural agencies began to be shaken by an ever widening knowledge of the natural agencies. Dogmatism was challenged by rationalism. The articles of faith were questioned by reason. The supreme Divine Will, operating arbitrarily, defying all explanation, began to be replaced by invariable Natural Laws. This mighty change took place slowly, but the process was irresistible.

Doubt was let loose as the great solvent of theology. Reason still remained subservient to faith. But it began to assert itself. Metaphysics appeared as the fore-runner of modern science. The scholastic learning rose with the Object of making a reconciliation between dogmas of religion and reason. That was as early as in the nineth century, when the founder of Scholasticism, Scotus Erigena, undertook the task of justifying the dogmas of religion rationally. He taught: "Reason is first in nature, and authority, in time. For, although nature was created together with time, authority did not begin to exist from the beginning of nature and time. But reason has arisen with nature and time from the beginning of things. Reason itself teaches this. For, authority no doubt hath "proceeded from reason, but reason not by any means from authority. And all authority which is not approved by true reason turns out to be weak. But true reason, seeing that it stands firm and immutable, protected by its own virtues, needs not to be strengthened by any confirmation of authority."*

The standard of revolt was raised, though with circumspection. Cautiously, a place was secured for reason, from which it could open an attack upon faith. Once faith submits herself to explanation by reason, there is nothing to prevent the process from reaching the point where she must be rejected as incompatible with reason. The Church had outlived her mission, and had become too narrow to contain the rising spirit of humanity. The

*Maurice, *Mediaeval Philosophy*.

standard of revolt, raised by Erigena, was held aloft and carried forward boldly by Rosellinus, Abelard and a whole host of others. The former was the first to attack the doctrine which had come to be known as "Realism". The Church had adopted the Platonic doctrine that abstract notions constituted the real existence. Rosellinus declared that general terms were "mere names", and argued that there did not exist a thing called colour apart from coloured things. He boldly pushed his ideas and proclaimed that the Trinity of Christian theology was incompatible with unity of real existence. He was accused of heresy and died a martyr to the cause of progress. But the "Nominalist" school of Scholasticism, he founded, contributed largely to the triumph of rationalism.

So irresistible were the new forces that before long-the more far-seeing among the orthodox churchmen preferred subterfuse to open attack against the enemy. The canonised Archbishop of Canterbury, Anselm, for example, "consecrated the privileges of Reason by showing the harmony between reason and faith." The result, however, was only to fan the flames of reason. Still for several centuries, reason remained more or less under the tutelage of faith; nevertheless, the authority of the latter was undermined, and the trail of spiritual freedom was blazed.

The great scholastic dispute between the "Realists" and "Nominalists" degenerated into a thick cloud of words. Reason again appeared to be overwhelmed by faith. Scepticism tended towards the blind alley of mysticism. At that juncture, Roger Bacon rose as the forerunner of the movement demanding greater freedom of thought and wider reach of enquiry. He also pleaded for the cultivation of mathematics and physics, and suggested rejection of the blind servility to scriptural text. Bacon was a pupil of the Arab philosophers and the founder of systematic physical research. He lived in the latter half of the twelfth century.

Until then, Rationalism had developed within the bounds of theology; now it threatened to burst the bounds. Europe still thought in terms of religion, and the

Church was the patron of culture. Bacon considered the Scholastics of both the schools as barbarians in comparison to Aristotle and his Arab disciples. But he would not bow blindly even before his masters. He found a surer guide in experience. Though a monk, he devoted himself to the study of astronomy, mathematics and optics. He declared that mathematics and experiment were the only way to knowledge.

"In every science, we must follow the best method, and that is to study each part in its due order, placing that first which is properly at the commencement, the easy before the difficult, the simple before the complex. And the exposition must be demonstration. This is impossible without experiment. We have three means of knowledge; authority, reason and experiment. Authority .has no value unless its reason is shown; it does not ter.ch, it only calls for assent. In reasoning, we commonly distinguish a sophism from a demonstration by verifying the conclusion through experiment. Experimental science is the mistress of speculative sciences."

Bacon found Rationalism inadequate, and opened the way to empirical knowledge. He clearly grasped the idea that philosophy must be based on scientific knowledge. He ridiculed the attempt to solve physical questions by reason. Referring to the rationalists, he jestingly remarked: "If you ask of these doctors what is the cause of combustion, they can only answer that the cause is occult." The realisation of the inadequacy of scholastic rationalism prepared the ground for the reassertion of materialism.

In course of his famous controversy with Thomas Aquinas, the greatest, of orthodox Christian theologists, the rationalist Don Scotus raised the momentous question: "Can matter think?" Then appeared Ockham in the beginning of the fourteenth century to liquidate

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Scholasticism. He was a free-thinker and as such boldly separated the questions of philosophy from the questions of faith. He declared:

"In the question of Divine Intelligence being the first efficient cause of all that exists, as a philosopher, I know nothing about it, experience not instructing us in what way the cause of causes operates, and reason having neither the power nor the right to penetrate the divine sanctuary."

Ockham stands out as a pioneer of modern materialism by virtue of his famous maxim: "Don't multiply entities." Until then, the practice had been to invent a universal, generic or noumenal conception to account for any phenomenon. A multitude of such imaginary conceptions were attached to one single thing. For example, a Socrates could be understood by the notion of "Socrateity", humanity, animality, bipedity, so on and so forth. Naturally, there could be no understanding in such a maze of imaginary conceptions in which the only being really existing was simply drowned. The scholastics had disputed about reality either of the particular or of the universal. The rationalist "Nominalists" did not go to the extent of liberating themselves from the vicious circle of that duality. "Ockham's razor" cut the Gordian knot. He taught: Be satisfied with the real entity; don't multiply entities: start from the given concrete. The implication clearly is that there is nothing beyond the material world accessible to our understanding.

"The sixteenth century marks its place in history as the century of revolutions; it not only broke the chain which bound Europe to Rome, it also broke the chain which bound philosophy to Scholasticism and Aristotle. It set human reason free: it proclaimed the liberty of thought and action. In the vanguard of its army, we see men who must always excite our admiration and our gratitude for their cause and for their courage. They fell fighting for freedom of thought and utterance—the victims of a fanaticism, the more odious because it was

not the rigour of belief, but of pretended belief. They fought in those days of the great struggle between science and prejudice, when Galileo was a heretic, and when the implacable severity of dogmatism baptised in blood every new thought born into the world."*

The deposition of Aristotle, the recognition of the inadequacy of the dogmas of faith, the worship of reason,, however, could not as yet lead to the freedom from all authority. Even in the fifteenth century, Aristotelian logic remained the corner-stone of Christian theology. To contradict Aristotle was to disobey the Church. The position is illustrated by the following story. A student, having discovered some spots in the sun, told a priest of his discovery. The priest remonstrated: "My son, I have read Aristotle many times, and I assure you there is nothing of the kind mentioned by him. Go, rest in peace; and be certain that the spots which you have seen are in your eyes, and not in the sun."

Giordano Bruno had the courage and conviction to contradict Aristotle. The latter had taught that the world was finite. Brurio declared that it was infinite and subject to an eternal and universal revolution. Aristotle believed the earth to be stationary. Bruno declared that it was in movement; that there were many worlds. He disputed the infallibility of the Church as regards science, holding that this earth of ours, on which the Church ruled, 'was not the central point of the Universe, it being one of an infinite number of worlds revolving in endless space. Deprecating the prevailing method of looking inside for the source of knowledge, he exhorted men to turn their eyes upon the nature. Though a Dominican monk, Bruno also was one of the early pioneers of modern materialism. He conceived of the identity of object and subject, of thought and being.

Bruno was burned as a heretic. But faith had lost its hold even on the minds of men who pretended to.

*Lewes, *History of Philosophy.*

defend her sovereignty. "The Inquisition was vigilant and cruel, but among its very members, there were sceptics. Scepticism, with a polish of hypocrisy, was the general disease. It penetrated almost everywhere from the cloister to the Cardinal's palace."*

Old beliefs and traditional values having been thus shaken, the triumph of the Renaissance movement was inevitable. Europe opened the chapter of modern civilisation inspired with the desire to acquire scientific knowledge, and the inspiration was drawn from the materialist thought developed in ancient times.

Descartes liberated philosophy from the fetters of theology, with his new method which started from, absolute doubt. The reign of authority was at an end. Nothing should be accepted as true until it was proved, and the standard of proof was not authority, but reason. He demanded that even theology should not be immune from reason. "I have always thought that the two questions of the existence of God and the nature of the soul were the chief of those which ought to be demonstrated rather by ^philosophy than by theology, for, although it is sufficient for the faithful to believe in God, and in that the soul does not perish with the body, it certainly does not seem possible ever to persuade the infidel to any religion, nor hardly to any moral virtue, unless we first prove to them these two things by natural reason."†

Once God and soul are placed under the step-motherly care of philosophy with her iconoclastic method, nothing but dire misfortune can overtake those venerable .prejudices. You can just as well take a fish out of water and let it thrive on the high and dry land. Disguised as an humble "faithful", the infidel threw down the fateful gauntlet to faith together with her shady entourage of teleology, theology and metaphysics, which had for ages served as so many fetters on the spirit of man. Starting

*Lewes, *History of Philosophy.*

†*Meditations.*

with an absolute doubt about everything, the reality and veracity of which could not be established by sense-perception, Descartes rejected authority as testimony of truth. That logically led to the deposition of theology from the proud position it had occupied for more than a thousand years. Nothing should be accepted as true unless it was proved to be so, and the standard of truth was not authority, or the mystic fantasy called revelation, but reason.

Descartes expounded a mechanistic doctrine about the origin of the Universe. He started laying down the foundation of modern physics with the following declaration: "Although we know for certain that God created the world at once, it would be of eminent interest to see how the world might have evolved" by itself. The existence of God is assumed, quite unnecessarily, as the first .cause of motion; but in the actual process of the evolution of the Universe, absolutely no place was left for the God. Together with his elder contemporary, Francis Bacon, Descartes most emphatically rejected the doctrine of the final Cause. He said: "We can only presume it, since the God did not take us into his counsel. This habit of searching for a Final Cause has no use in physical and natural things." His theory of vortices explained the evolution of the Universe out of matter and motion. He tried to improve the ancient atomist theory by freeing it from the fallacy of action at a distance. He denied the existence of empty space on the ground that, the essence of substance being extension, wherever there is extension, there is substance; consequently, there can be no empty space. The substance which fills the space is assumed to be divided into angular particles. The mass of matter is in motion. The angular particles are ground into spherical forms. The smaller particles, rubbed off, constitute a second and more subtle kind of matter. The first goes into the constitution of luminous bodies, suns etc. There as still a third kind of matter, less fitted for motion. Out of these are formed the opaque bodies, earths, planets, etc.

The second make the transparent substance of the sky. The motion takes the form of revolving circular currents—vortices. So, the coarse matter is collected to the *I* centre of the vortex, while the second, finer matter, surrounds it, and by its centrifugal effort constitutes light. The planets are carried around the sun by the motion of the vortex.*

The Cartesian theory of vortices marks the birth of modern physics and cosmology. In the beginning, the hypothesis appeared to be contradicted by the Newtonian physical theories which relied more on atomism in its original form. But modern physics vindicates the Cartesian hypothesis of an all pervasive substance.

The credit for the definite inauguration of a new philosophy on the basis of experimental science and with;' the aid of inductive logic goes also to Francis Bacon. He started the enunciation of his "new method" with the following observations: "Through all these ages, the-smallest part of human industry has been spent upon natural philosophy, though this ought to be esteemed as a great mother of all the sciences. Let none expect any great promotion of the sciences, unless natural philosophy be drawn out to particular sciences, and, again, unless particular sciences brought back to natural philosophy." Having criticised the "perverseness and insufficiency of the methods which have been pursued," he goes on: "Men have sought to make a world from their own conceptions. A sudden transition is made from sensible objects and particular facts to general propositions, which are accepted principles, and round which disputation and arguments continually revolve. The way that promises success is the reverse of this. It requires that we should generalise slowly, going from particular things to those that are but one step more general; from those toothers of still greater extent, and so on to such as are Universals. By such means we may hope to arrive at:

*Whewell, *Inductive Sciences.*

principles, not vague and obscure, but luminous and well denned, such as Nature herself will not refuse to acknowledge. The evidence of sense, helped and guarded by a certain process of correction, I retain; but the mental operation which follows the act of sense, I, for the most part, reject, and instead of it, I open and lay out a new and certain path for the mind to proceed in, starting directly from the simple sensuous perceptions."

In its fight with religion and theology, rationalism had developed into materialism. Both Descartes and Bacon professed lip-loyalty to the idea of God. But in reality they laid down the foundation" for modern materialism. Bacon enunciated the fundamental principles of a purely materialistic epistemology. As a matter of fact,. he even tended to go a bit too far when he refused to attach any value to "the mental operation". Evidently, he was fighting shy of the idea of soul. But in course of time science revealed that mental operations also were determined by the laws of the physical world.

On the basis of the pioneering work done by a number of great scientists, like Copernicus, Kepler, Galileo and others, Newton formulated the Law of Universal Gravitation, the verification of which by a series of observed facts definitely established the mechanistic view of nature. Newton expounded the "new philosophy" as. the Natural Philosophy. For all practical purposes, it was materialism. And the Newtonian Natural Philosophy dominated the intellectual life of Europe until the successive achievements of science, inspired by it, contributed to the materialistic and rationalist thought, developed throughout the ages, into the comprehensive system of modern materialism.

Theology is developed, in course of spiritual development, when man begins to question about the nature of the creator whom he had previously manufactured out of his own imagination. The anthropomorphic God is gradually transformed into the metaphysical Supreme Being. That is the function of theology. Pantheism is

the logical consequence of a consistent theology; and it leads directly to atheism. To prevent that catastrophic culmination of the religious mode of thought, speculative and idealistic philosophy steps in to confuse the logical line of development. Speculative philosophy is the attempt to explain the concrete realities of existence from the standpoint of a hypothetical Absolute. Objective truth is never reached that way. Failing to understand the world, speculative philosophy declares it a figment of our imagination. A search after truth, which begins from the concrete, reveals the eternalness of nature, having no place for a Creator or a Supreme Being. Therefore, speculative philosophy avoids the simple and right course, and beats about the bush endlessly.

The "new philosophy" inaugurated by Descartes developed in two distinct directions, apart from the path of experimental science opened up by Newton and others. Of the two philosophical tendencies, one culminated in modern materialism, and the other developed in the contrary direction of idealism ("philosophical spiritualism"). The respective origins of the two antithetical lines of development are to be traced to the two great philosophers, Spinoza and Leibniz.

Spinoza brought theology to its logical conclusion. He expounded a mathematically rigorous system of pantheism with the inevitable implications of atheism and materialism. The cardinal principles of Spinoza's philosophy are: Unity of all that exists; regularity of all happenings; and the identity of matter and spirit. With these principles, Spinoza stood on the ground of materialism, although as a pantheist, he conceived the substratum, of the world as "soulful matter". Spinoza's philosophy therefore matured in three different directions: 1. In the poetry of Lessing, Herder and Goethe; 2. In the French Enlightenment of the eighteenth century; and 3. In the 'German classical philosophy of Schelling, Hegel and Teuerbach. Finally, Marx and Engels gathered all the

three threads to weave them into the system of dialectic historical materialism.

Spinoza's doctrine of "creation" was the ideology of a transition period. Rationalism had destroyed the Christian dogma—of creation out of nothing; at the same time, science was not yet developed enough to provide a purely materialistic explanation. Spinoza completely destroyed the old, and laid the foundation for the new. He condemned absolute ideas as abstractions arising from the infirmity of thought. He held that "transcedental ideas", thus formed, are necessarily obscure, inadequate, and therefore erroneous. Thought is the correlate of existence; mind is the obverse of matter, co-extensive and co-intensive. All movement of matter is paralleled by the movement of mind, the external order is identical with the internal order. And whatever is conceived by intellect exists in the external world. In other words, ideas are but reflections of external things, having objective existence. Spinoza was a strict detenninist. He argued: "Forging iron is only possible when we have a hammer; but to have the hammer, we must forge it, which presupposes another instrument, and so on *ad infinitum.*" The materialist implication of this argument is made evident by Spinoza's famous axiom: "No two things can influence and affect each other, which have not some property in common."

This axiom completely destroys the dualist conceptions of matter and spirit. Should spirit influence and affect matter, as the condition for the creation of the phenomenal world, there must be some property common to both. If they affect each other, as they must do (otherwise there would be no creation), they are essentially the same. Consequently, in spite of its "soulfulness", Spinoza's substance is material. Spinoza's observations about the doctrine of the Final Cause are so very illuminating that they are better reproduced in his own words.

"Men do all things for the sake of an end, namely, the good or the useful they desire. Hence it comes that

they always seek to know only the final causes of things. As within themselves and outside of themselves, they discover many means which are highly conducive to the pursuit of their own advantage, for example, eyes to see with, teeth to masticate with, vegetables and animals for food, the sun to give the light, the sea to nourish fish, etc.,—so they come to consider all natural things as means for their benefit; and because they are aware that these have been found, and not prepared by them, they have been led to believe that someone else has adapted these means to their use. For, alter considering things in the light of means, they could not believe these things to have made themselves, but arguing from their own practice of preparing means for their use, they must conclude that there is some ruler or rulers of nature endowed with human freedom, who have provided all these things for them, ..and have made them all for the use of man. Moreover, since they have never heard anything of the mind of those rulers, they must necessarily judge of this mind also by their own; and hence they have argued that the gods direct all things for the advantage of man, in order that they may subdue him to themselves, and be held in highest honour by him. Hence, each has devised, according to his character, a different mode of worshipping God, in order that God might love him more than others, and might direct all nature to the advantage of his blind cupidity and insatiable avarice. Thus, this prejudice has converted itself into superstition, and has struck deep root into men's minds; and this has been the cause why men in general have eagerly striven to explain the Final Cause of all things. But while they sought to show that Nature does nothing in vain, they seem to me to have shown nothing else than that nature and the gods are as foolish as men. And observe to what a point this opinion has brought them. Together with the many useful things in nature, they necessarily found not a few injurious things, namely, tempests, earthquakes, diseases, etc. These, they supposed, happened because the gods

were angry on account of offences committed against; them by men, or because of faults incurred in their worship; and although experience every day protests, and shows by infinite examples that benefits and injuries happen indifferently to pious and ungodly persons, they therefore do not renounce their inveterate prejudice. For, it was easier to them to class these phenomena among other things, the cause of which was unknown to them, and thus retain their present and innate condition of ignorance, than to destroy all the fabric of their belief and excogitate a new one."

In a short compass, no more comprehensive and convincing criticism of the religious mode of thought could be given. Nevertheless, the roots of modern philosophical spiritualism also can be traced in the teachings of Spinoza. He built up a system on a set of definitions, axioms and propositions, conceived by "pure reason". The extreme clearness of these scaffoldings and the logical rigour of their application gave a mathematical precision to his system. Rationalism exhausted its possibilities. Supernatural authorities having been subverted, .a new authority was enthroned in its place. That was Reason. Thus, the fundamental problem of philosophy was not yet solved. It only assumed a new, a more subtle form. How can the infallibility of reason be established? What is the sanction for this infallible standard? Whence do clear ideas come? Philosophy. thus resolved itself into the question: "Have we, or have we not, any ideas antecedent to, and independent of, experience?" The answer in the affirmative led to modern idealism; that in the negative, to materialism.

Theology dominated learning much longer in Germany than in England and France. The influence of the materialistic thought of Gassendi, Descartes, Hobbes, Bacon, Locke and Newton, was stubbornly resisted in that country. Since the time of Descartes and Bacon, all great philosophers sought to construct a theory of the Universe independent of theology, with the aid of

science. Efforts were also made to construct a modem system of metaphysics on the foundation of physical data. Those efforts were necessarily faulty, and handicapped with religious prejudices. Nevertheless, they irresistibly headed towards materialism, and by implication destroyed all faith: the dogmas and creeds of religion. The first great reaction to this movement began in Germany. The great mathematician Leibniz was the leader of that movement. He constructed a scheme of the Universe from logical principles, accepted *a priori*. The "substance" of Descartes and Spinoza had provided the basis for a mechanical conception of the Universe. The essence of substance consisted in extension and thought. That was a conception pregnant with revolutionary potentialities. Leibniz opposed it with the conception of Force. Matter is the necessary consequence of force. Force is self-moved and immovable; self-divided, but not divisible. Matter evolves out of it. The dualism of matter and mind is overcome. Force is active and passive-In the latter state it is matter. Active force is the soul of matter—the impulse of its movement. But even these doctrines of Leibniz could not avoid a materialist conclusion.

Advance of science had forced theology to make determinism a part of its own system of dogmas. How to reconcile the conceptions of God and Soul with the idea; of the mechanistic movement of nature? Leibniz undertook the impossible task. In order to strike materialism at the very root, he set about to reform the atomist conception. To prove that the Universe did not grow out of inanimate matter, he held that the atoms produced their own sensations; sensation was their innate quality. He held that the basic element of things were not atoms, but "monades". "In the place of material atoms appear intellectual individuals, in the place of physical, metaphysical points."*

*Zeller, *History of German Philosophy*.

Yet, these "intellectual individuals" or "metaphysical points" are also subject to a mechanistic law which reappears as the postulate of the "pre-established harmony." Whatever may be the philosophical value of this postulate, dispenses with the Creator. "The monades develop strictly necessarily, according to the forces inherent in them. None of them can, either in the sense of ordinary causality, or in that of pre-established harmony, be the productive cause of the rest. Even the pre-established harmony does not produce the monades, but only determines their condition, in precisely the same way as, in the system of materialism, the universal laws of motion determine the condition, that is, the relation in space, of the atoms."*

Everything in nature grows mechanistically—under a necessity, in an endless causal chain. It does not make any difference what name is given to the primary element. There is room neither for a Creator nor for a First Cause. As soon as the eternalness of the monades is assumed, there can no longer be any question of a Creator, no matter whatever may be the nature of the monades and their action. Leibniz's concern was to establish the First Cause of the phenomenal world, that is, the existence of an impersonal God. But the tragedy is that precisely that is dispensed with in his cosmology. The logical conclusion of the idea of the mechanical movement of nature is the endlessness of the causal series —both ways. Otherwise, backwards, the process must be traced to a Creator; and the mechanical movement immediately ceases to be mechanical as soon as that is done; it becomes ideological. The "pre-established harmony" is not the First Cause.

Newton postulated the *deus ex machina*, in order to go around the baffling problem of action at a distance. The problem did not exist in the system of Leibniz. His monades move, combine and react upon each other accor-

*Lange, *History of Materialism.*

ding to force inherent in themselves. Thus the "pre-established harmony" is only the principle of universal mechanism, metaphysically conceived. It does not exist apart from, or independent of, the monades. It is their inherent quality. Thus, Leibniz, in spite of himself, arrives at the unity of matter and spirit, identity of thought and being. Here he lands on the ground of materialism. There can be no theism without dualism; religion is gone.

How would it look, should one regard the "pre-established harmony" as the First Cause? Simply, there would arise the question: "What is the cause of the First Cause? This question cannot be avoided, unless causality is abandoned. That would be against the whole system of Leibniz which rests upon the mechanism of causality. Whenever the causal chain breaks, it becomes inevitable to postulate a Creator, and determinism is gone. That is the irreconcilable contradiction between philosophy and theology. Instead of calling the "pre-established harmony" the First Cause, and thereby discard his whole philosophy, Leibniz, like all rationalist theologians, arbitrarily breaks off the causal series, and postulates an impersonal Creator. This irrationalism of the "rationalists" is forced; because, otherwise they would be driven to what may be called "inductive pantheism", if the term materialism is to be avoided. By following the causal chain, one must reach the point where dualism disappears, the line between spirit and matter vanishes, the identity of thought and being is established, and there remains nothing but a die-hard prejudice against materialism.

Leibniz" introduced God in his godless philosophical system with the curious doctrine of the choice of the best world out of the infinite number of them possible to grow out of the mechanical movements and combination of monades. Everything goes on mechanistically, but an unseen hand guarantees that it goes in the right way. But, again, unless the determinism of philosophy is secretly

offered at the altar of theological dogma, the God appears to be a useless postulate, because the "pre-established harmony" should work out disregarding all outside interference. In the philosophy of Leibniz, "everything ends in bare, naked matter of fact; the dependence of things upon God is an empty shadow. We may conceive ' the eternal essence of things, in whose nature God can alter nothing, just as well as eternal forces, by whose actual interaction is attained that reciprocal constraint which Leibniz brings about by the choice of God."*

The same author shows that the God of Leibniz cannot suck anything out of his thumb; that he does not create anything whatsoever. In any imaginary function whatsoever, earmarked for him, he has to do strictly with given facts—the monades, existing eternally and moved mechanically by the force innate in themselves. The God "may be omnipotent, omniscient and anything else, but he cannot go beyond the essence of possibilities of the monades that exist independently of him and are conditioned by a pre-established harmony." The best that can be said of such a God is that he is a skilful mathematician and correctly appreciates the laws of mechanics which, however, he cannot change. The world will not be in the least affected for disregarding such a God who has no conceivable relation with it.

The greatest achievement of Leibniz is supposed to be the re-establishment of the "immateriality and simplicity of the soul". In this also, he contributed to the development of materialism, of course, unwillingly. The logical consequence of his doctrine of innate ideas is the admission of the identity of thought and being. The soul was saved at the cost of religion. For, religion disappears with the abolition of the separate existence of matter and spirit. And in the absence of religion, the soul ceases to be something super-natural. For fighting materialism,

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*Baumann, *The Doctrines of Space, Time and Mathematics.*

Leibniz was compelled to adopt a method which only defeated his end.

The monades are conceived as souls in embryo; but, on the one hand, they are not "divine sparks", because they are themselves eternal, existing by themselves, subject necessarily to forces inherent in themselves; on the other hand, they constitute everything—organic, inorganic, animal, human, etc. The doctrine of monades thus abolishes the qualitative difference between man and the lower animals, indeed, even the inanimate things. Thus, Leibniz unconsciously tended towards the theory of evolution formulated later by Lamarck and Darwin. The advance towards the recognition of a continuous connecting link between the lower and higher animals was unavoidable. The declaration was forced that animals possess souls as immortal as those of men. Pursuing the thoughts of Leibniz, one of his pupils came to the very significant conclusion that not only all animals had souls, but that their souls went through various stages and finally reached the degree of spirit, that is, human soul. That was a position not very far from Darwin, but very very far from what Leibniz is supposed to have established—the "simplicity and immateriality of the soul". Human soul cannot be so simple if it results from a long process of evolution through successive animal stages. Nor is it immaterial, since it is changed through its contact with varying material objects.

Materialism was the spontaneous expression of human spirit. Its march could be retarded, but not checked. Even in Germany it asserted itself as evidenced by the failure of Leibniz to combat it. As a matter of fact, whoever tried to Think philosophically, and to construct a system of philosophical thought, contributed to the development of materialism.

"One circumstance that helped to bring about *so-thorough* a reform of philosophy was above all the defeat that materialism had inflicted upon old metaphysics. In spite of all refutation on special points, materialism lived

on, and gained ground all the more, perhaps because it was not a narrow and exclusive system. Materialistic mode of thought very quietly gained ground in the positive sciences. The truth was that all the scholastic philosophy of the time could supply no sufficient counter-poise to materialism."*

Modern philosophy developed clearly and directly in the materialist direction in England. Hobbes was the founder of English materialism. Even before Newton, he rejected consciousness or innate idea as the standard of knowledge. He held that the origin of knowledge was to be sought outwards. The outside world was not to be explained by logic, but through the knowledge of its objective nature. About thought, Hobbes wrote: "Singly, they are everyone a representation of appearance of some quality or other accident of a body without us, which is commonly called an object. Which object worketh on the eyes, ears and other parts of a man's body, and by diversity of working produceth diversity of appearance. The original of them all is that which we call sense, for there is no conception in a man's mind which hath not at first, totally or by parts, been begotten upon the organ of senses. The rest are derived from the original."†

Hobbes further wrote: "Whatever we imagine is finite. Therefore, there is no idea, no conception of anything we can call infinite. No man can have in his mind an image of infinite magnitude; no man can conceive infinite swiftness, infinite time or infinite power. When we may say that anything is infinite, we signify only that we are not able to conceive the ends and bounds of the thing named, having no conception of the thing, but of our own inability. And therefore the name of God is used not to make us conceive him, for he is incomprehensible, and his greatness and power inconceivable, but that we may honour him. Also because whatsoever we conceive has

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*Lange, *History of Materialism.*

† *Leviathan.*

been perceived first by the senses, either all at once, or by parts, a man can have no thought representing anything not subject to sense."*

In the light of this reasoning, religion turns out to be a mere glorification of the limitedness of human knowledge. The qualities attributed to God are mere words. They do not represent any objective reality, as far as man is concerned. Hobbcs does not expressly deny the super-sensual. But he places it beyond the ken of probability.

The Sensationalist school of philosophy, ,heralded by Hobbes, was founded by Locke. He proposed "to enquire into the original, certainty and extent of human knowledge." The substance of Locke's teaching is: Know the limits of your understanding; beyond these limits, it is madness to attempt to penetrate; within those limits, it is folly to let in darkness and mystery, to be incessantly wondering and always assuming that matters cannot be so plain as they appear, and that something lying deeper courts our attention. Locke clearly rejected the supersensual as mere assumption. "Men extending their enquiries beyond their capacity, and letting their thought wander into those depths where they can find no sure footing, it is no wonder that they raise questions and multiply disputes which, never coming to any clear resolution, are proper only to continue and increase their doubts, and to confirm them at last in perfect scepticism."†

The semi-materialist Sensationalism was the outcome ot rationalism. Reason could not claim to be the source of absolute knowledge without restoring God whom it wanted to depose. Its pretensions were curbed, by Sensationalism. There is a limit, to human knowledge. Beyond *the* limit, there may be anything. Sensationalism was not a system of philosophy. It was epistemology, and in that sense, it was frankly materialistic. Its fundamental

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* *Human Nature.*

† *Human Understanding.*

multiple was that sense perceptions were the only source of knowledge, and the senses perceived things which really existed outside. The English atmosphere of social compromise, in which the Sensationalist school flourished, did not permit it to develop its materialist principles fully and clearly. That was done in France as the ideology of the Great Revolution, The Sensationalist philosophy of Hobbes and Locke provided the point of departure for the great French materialists of the eighteenth century.

"Although modern materialism appeared as a system first in France, yet England was the classic land of the materialistic mode of thought. Here, the ground had already been prepared by Roger Bacon and Occam; Bacon of Verulam, who lacked almost nothing but a little more consistency and clearness in order to be a materialist, was wholly a man of his age and nation, and Hobbes, the most consequent of modern materialists, is at least as much indebted to English tradition as to the example and precedence of Gassendi. It is true, indeed, that by Newton and Boyle, the material world-machine was again provided with a spiritual constructor; but the mechanical and materialistic theory of nature only rooted itself the more firmly, the more one could pacify religion by appealing to the Divine Inventor of the great machine."*

The Sensationalist philosophy of Locke, improved and amplified by Cond iliac, influenced the thought of eighteenth century Europe; it became the ideological basis of the bourgeois revolution The object of Condillac's system was "to show how all our knowledge and all our faculties are derived from sensations." It is evident how he went farther than Locke. Rejecting reflection as a source of knowledge, Condillac traces the root of all know[1] edge lo a single source—sensation. In doing so, he also broke with the Cartesian doctrine of innate ideas. Condillac was the first to disassociate mincl from the metaphysical idea of soul, and conceive it as an

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*Lange, *History of Materialism.*

integral part of the body. He holds that mind is nothing but a faculty out of which all the faculties evolve through the action of external objects on the senses. While praising Locke as the only philosopher who, after Aristotle, had written something worthy of notice on the question of cognition, Condillac took a step in advance: "The Englishman has certainly thrown great light on the subject. But he has left some obscurity. All the faculties of the soul appear to him to be innate qualities, and he never suspected that they might be derived from sensation itself."

In addition to rejecting the doctrine that faculties are innate, the father of French materialism identified knowledge with sensation. But in his time, biological knowledge was as yet too backward to establish this experimentally. He maintained that interferences drawn from the examination of animal organisms were applicable to the observation of human mind. But comparative anatomy and physiology were still very backward. Then, the prejudices about soul forbade any such comparison in the sphere of psychology. "If men formerly thought they could understand man's body by dissecting it, and did not need the light thrown thereon by the dissection of animals, they were still less likely to seek psychical illustration in animals, denying as they did that animals also had mind."*

Nevertheless, Condillac suggested that psychological investigation, that is, enquiry regarding the nature and function of soul and mind, should be conducted not on the plane of metaphysical speculation, but as a branch of physiology. The English physician Hartley worked upon that suggestion. The impetus to his enquiry also came from Newton's suggestion that the cause of sensation was vibration of ether. Hartley made the first attempt to explain psychological phenomena as actions of the physiological mechanism. Postulating that man consists of two parts, body and mind, Hartley tried to find the relation

*Lewes, *History of Philosophy*.

between the two, and came to the conclusion that mental phenomena were produced by the vibrations of ether caused by external objects. Tracing the cause of all mental activities to etherial vibrations, Hartley destroyed the dogma of the immateriality of soul, and showed that mind was not a spiritual entity independent of, and antecedent to, the material body.

Erasmus Darwin, a name little known in the history of thought, approached the problem even more boldly than Hartley. He defined idea as "a contraction or motion, or configuration, of the fibres which constitute ihe immediate organ of senses", and held idea to be synonimous with "sensual motion in contra-distinction to muscular motion."* He not only challenged metaphysical speculations, but confronted the half-hearted Sensationalists with very pertinent questions. "If our recollection or imagination be not a repetition of animal movements. I ask, what is it? You tell me it consists of images or pictures of things. Where is this extensive canvass hung up? Or, where the numerous receptacles in which these are deposited? Or, to what else in the animal system have they any similitude? That pleasing picture of objects, represented in miniature on the retina of the eye, seems to have given rise to this illusive oratory! It was forgot that this representation belongs rather to the laws of light than to those of life; and may with equal elegance be seen in the camera obscura as in the eye; and that the picture vanishes for ever when the object is withdrawn."

The Sensationalists could not get rid of the traditional belief that there is some sort of a spiritual entity in man which receives the impressions of the external objects. Erasmus Darwin riot only exposed the groundlessness of that belief, but made an attempt to clear away the doctrine of image which had confused the theory of cognition, feeding idealism, on the one hand, and promoting scepticism, on the other. The logical conclusion of the

*Erasmus Darwin, *The Laws of Organic Life*.

views of Hartley and Erasmus Darwin was that ideas were produced in a long complicated physiological process caused in the nervous mechanism by external objects.

The credit of founding the materialist theory of cognition belongs to the French scientist Cabanis. A disciple of Condillac, he detected the shortcoming of the master, indeed, of the entire Sensationalist school, which suffered from a serious weakness owing to the failure to take transmitted (through heredity) and previously stored impressions (instincts) into account. Owing to that defect, the Sensationalist explanation that mental phenomena were properties of the vital organism failed to carry conviction. The word "sensation" having a limited connotation—of immediateness and directness—even Condillac could not cure the basic defect of his materialism. It was for Cabanis to do so, who liquidated Sensationalism in favour of full-fledged materialism. He added "connate instincts" to direct and immediate sensations, as the source of mental phenomena. He thought it necessary to ascertain what was sensibility. He opens his enquiry with the question: "Does it always presuppose consciousness and distinct perception? And must we refer to some other property of living body all those unperceived impressions and movements in which volition has no part?" The enquiry, thus begun, led him to the following conclusion.

"Subject to the action of external bodies, man finds in the impressions these bodies make on his organs, at once his knowledge and the cause of his continued existence; for, to live is to feel; and in that admirable chain of phenomena, which constitute his existence, every want depends upon the development of some faculty; every faculty, by its' very development, satisfies some want, and the faculties grow by exercise as the wants extend with the faculty of satisfying them. By the continual action of external bodies on the senses of man, results the most remarkable part of his existence."*

**The Relation between the Body and the Moral of Man.*

Here, the revolutionary principles of Sensationalism are freed from all limitations. This statement of those principles connects intelligence, desire, knowledge, etc. with the origin of vital movements. It abolishes the invidious distinction between life and mind. It makes mind a function of the living body. The mediaeval religious philosophy had subordinated mind to the soul which was placed above and beyond all material and physical conditions. In their revolt against theological domination, the philosophers of the Renaissance conceived mind as an independent entity. Descartes and Bacon adopted the doctrine. Since then, philosophy, particularly the semi-materialist Cartesian school, combatted all suggestions which denied to intellect and reason a super-material character. To recognise the independence of mind came to be regarded as the first principle of materialist philosophy. "To doubt this truth, was to overthrow all morality, to reduce man to the level of brute, to make religion a mockery. To doubt this truth, was in fact to incur the most incriminating charges of—materialism."*

Thus rationalism came to the aid of religion whose foundation it has previously sought to undermine by asserting the freedom of mind; metaphysical philosophy made peace with theology which it wished to abolish. Philosophy could not be freed from metaphysical prejudices and the terror of being called materialist, unless and until mind was clearly demonstrated as a function of animal organism, developing simultaneously with it. That was not possible to be accomplished by speculation, however bold, or logic, however acute. The development of biology was the condition for it. The merit of Cabanis was to indicate the way in that direction. Unless mind was divested of ail spiritual properties, and recognised as a function of the animal organism, no science of human knowledge could be possible. Sensationalism brought philosophy to that parting of ways. There were three

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* Lewes, *History of Philosophy*.

ways ahead: Materialism, Scepticism and Idealism. Power of prejudice and objective difficulties still blocked the first; the second was visibly a blind-alley; so, the main current of thought flowed in the third, to culminate in the classical German philosophy which, finally, was overcome by its own grandeur.

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The Newtonian Natural Philosophy was introduced into France, then in the throes of a gigantic revolution, because it was considered to be less injurious to faith than Cartesianism. But in the hands of the disciples of Condillac, who subsequently came to dominate the intellectual life of Europe as the great Encyclopedists, the pious philosophy of Newton only promoted the cause of atheism and materialism. "For the complete working out of the cosmology founded by Newton, no more favourable circumstances, no more favourable tone of thought, could be found than those in France in the eighteenth century. The magnificent phenomena of the seventeenth century were renewed in increased splendour, and to the age of a Pascal and Fermat succeeded with Maupertuis and D'Alembert, the long series of French mathematicians of the eighteenth century, until Laplace, drew the last consequences of the Newtonian cosmology in discarding even the hypothesis of a Creator."*

The French materialism of the eighteenth century is elaborately developed in the monumental book, *The System of Nature* which, though appearing as the work of Holbach, was in reality the collective production of a number of intellectual giants, such as Diderot, Buffon, De Tracy, Helvetius, and others. The book came to be known as the "Bible of Materialism" or the "Bible of Atheism". The book proposes to answer the question, how to secure the happiness of mankind? The answer is summarised in the preface:

"Man is unhappy merely because he misunderstands

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*Lange, *History of Materialism.*

nature. His mind is so infected by prejudices that one must almost believe him to be for ever doomed to error; ihe chains of illusion, in which he is so entangled from childhood, have so grown upon him, that he can, only with the utmost trouble, be again set free from them. Man disdained the study of nature to pursue after phantoms that dazzled him and drew him from the plain path of truth, away from which he cannot attain happiness. It is, therefore, time to seek in nature remedies against the evils into which fanaticism has plunged us. There is but one truth, and it can never harm us. To error are due the grievous fetters by which tyrants and priests everywhere succeed in enchaining the nations. From error arose the bondage to which nations are subject; from error, the terrors of religion, which brought about that men mouldered in fear, or fanatically throttled each other for chimeras. From error arose deep-rooted hatred and cruel persecutions; the continual bloodshed and the horrid tragedies of which earth must be made the theatre to serve the interests of heaven. Let us try, therefore, to banish the mists of prejudice, and to inspire man with courage and respect for his reason. If there is any one who cannot dispense with these delusions, let him at least allow others to form their own ideas in their own way, and let him be convinced that, for the inhabitants of earth, the important thing is to be just, benevolent, and peaceful."

There is a classical record of the ideals and sentiments of avowed materialists. This was written nearly two hundred years ago. Since then, the development of science has consolidated the foundation of materialism, having removed the logical weaknesses of its structure. But the high moral ideals of materialism, declared two hundred years ago, still remain the same even to-day. Therefore, all the attacks against materialism, made ostensibly in the name of justice, peace, goodness and morality, are palpably mistaken or purposely malacious.

The following are the fundamental principles of materialism as stated elaborately by the great French

philosophers of the eighteenth century: Nature is the great whole of which man is a part, and by which he is influenced. Super-natural beings have always been creatures of imagination. There does not, and can not, exist anything beyond the sphere that includes all creatures. Man is a physical being, and his moral existence is only a special aspect of his physical nature, a particular mode of action, due to his peculiar organisation. The world shows us everywhere nothing but matter and motion. It is an endless chain of causes and effects; the most various elements are continually reacting on each other, and their different qualities and combinations constitute for us the nature of individual things. The nature of a thing is the sum of its properties and modes of action. ,

No more need be added to this exposition of materialism, on the level attained in the middle of the eighteenth century, than one or two characteristic quotations from the more prominent French Encyclopedists.

"Moral doctrines are frivolous, unless they are given practical shape in politics and legislation. Men are neither good nor bad by birth; they are ready to be one or the other in accordance as common interest unites or separates them. Great reforms can be introduced only when the stupid glorification of old laws and customs is combatted that is to say, ignorance is abolished." (Helvetius).

"A man without passion or wish would cease to be 'human. A man to whom everything is the same, who is deprived of all passions, who is self-sufficing, would no longer be a social being." (Holbach).

It is to fight this philosophy of the spiritual liberation of man, that modern idealism developed as the official philosophy of the post-revolutionary modern Europe. * * * *

Idealism places spirit before matter, thought before being, mind before body. It is the antithesis of materialism. Ideas as abstract categories, existing by themselves, independent of body, as spiritual forms or patterns for material phenomena, were first created by the poetic

imagination of Plato. The imagination of the Sage of Athens conforms nicely with the super-natural doctrine of creation, common to all religions: A Divine Will, an Immaterial Force, or a Super-Natural Being created the phenomenal world out of nothing, or expressed itself as such. The essence of the conception is that an immaterial consciousness is prior to material being; in other words, thought not only precedes being, but is independent of it. Indeed, the material being is the product of, and governed by, an immaterial spirit. Since the immaterial cannot conceivably be comprehensible to the material, the world of spirit—the First Principle or the Final Cause of the world—must always remain beyond the reach of human mind, whose operation is limited by sense-perceptions. Yet, the object of life is to penetrate into that forbidden paradise! Thus, life is split up into two distinct compartments, one governed by the inscrutable force of the other, but never able to comprehend the operation of that imperious category. How, then, can the unattainable object of life be reached? Through Faith. How can the impossible be possible? Through magic. Since perceptions are not reliable, there must be some divine inspiration. Scientific knowledge is set at a discount; premium is placed upon "religious experience". These, in brief, are the main premises and logical consequences of the idealist philosophy; and from these, its close kinship, indeed, identity, with religious spiritualism is evident.

The most orthodox exponent of modern Idealism was Bishop Berkeley. His mission was to combat materialism which developed powerfully during the seventeenth and eighteenth centuries. He re-established the old religion, in an apparently rationalised form, after it had been rudely shaken by the great rationalist and materialist thinkers of the seventeenth century. Berkeley defined his philosophy as follows: "I assert as well as you (materialists) that, since we are affected from without, we must allow powers to be without, in a being distinct from ourselves. But then we differ as to the kind of this

powerful being. I will have it to be spirit, you, matter."*

The editor of Berkeley's works writes: "This is the gist of the whole question. According to the materialists, sensible phenomena are due to material substance; according to Berkeley, to Rational Will."†

The militant Bishop did not mince words about the nature of the Rational Will. For him, it was not a metaphysical abstraction; nor was it an indefinable mystic force. He went boldly to honest anthropomorphism: It was the "Will of God". Apart from his frankly professed religious zeal, Berkeley had another axe to grind. It was, to save his philosophy from solipsism—the insane position that nothing exists but myself—a position to which his epistemological doctrine logically led. Therefore, he hastened to qualify the disastrous doctrine by saying that the world is not my idea. Ideas are of divine origin. They are created in the human mind by the operation of the laws of nature which are determined by a spiritual cause ‡ Thus, on the evidence of its most orthodox, authoritative and consistent exponent, idealist philosophy, in the last analysis, is religion. It can stand only on the hoary foundation of faith, be it clearly

**The Dialogue between Hylas and Philomenes.*

†A. C. Fraser, Introduction to the Oxford Edition of the Works of Barkeley.

‡ "Our ideas are produced in us conformably with the laws of nature. These laws have been ordained by God. To suppose that matter is the mere occasional cause—the vehicle through which the laws of nature operate—is, gratuitous. The existence of matter cannot be established either bv intuition or by inference; the notion is full of contradictions. The existence of spirit is known directly, and spirit is God. The agency of the creator is therefore more simple and direct. He had no need of creating first laws, and afterwards matter through which these laws should come into effect. He thought, and his thought reflected itself in us directly without the superfluous aid of matter as a mere go-between." (Berkeley, *Treatise on Human Knowledge.)*

visible, or cleverly concealed. Therefore, on a rigorously philosophical ground, it cannot hold its own against materialism which relies upon verifiable scientific knowlege.

What Berkeley combatted, to some extent successfully,, was not materialism, but sensationalism. And even then,, the issues he joined were not philosophical, but epistemological. He did not deny that senses received impressions from outside, but maintained that mind had nothing more than its own perceptions. All questions regarding the nature of the external world from which the impressions came, he dismissed as idle metaphysics. But whenever he was pinned down to that fundamental question of philosophy proper, he was compelled to admit that there must be a substance from which the external world is made, but asserted dogmatically, that the substance was not material, but spiritual. Consistently followed up, on the philosophical plane, Berkeley's philosophy must end in the position that there exists nothing. That would be giving a handle to sceptism, which he also wanted to fight. Therefore, he admitted the existence of the external world and could avoid defeat at the hands of materialism only by reviving religion, that is to say, by abandoning the ground of philosophy.

The materialism of the great philosophers of the seventeenth century (Bacon, Hobbes, Locke etc.), combatted by Berkeley, the most consistent exponent of modern idealism, had not defined the position so clearly as was subsequently done in the middle of the nineteenth century on the evidence of the epoch-making discoveries of the natural sciences. Yet, Berkeley measured up the potential strength of the enemy with a remarkable insight. His greatness as a philosopher consisted in his ability to grasp the revolutionary implications of Sensationalism more clearly than its founders themselves. The logical deduction to be made from the Sensationalist theory of cognition, a deduction not fully made by the propounders of the theory, is that consciousness has no

existence *per se;* it is but a complex of sensations, created by external objects upon living matter, adequately organised. The primacy of being, established by this deduction, links up epistemology directly with the old physical hypothesis of Democritus and Epicurus.

Epistemological problems are not problems of metaphysics. They can be properly stated and satisfactorily solved only in the light of a mechanistic-physical, as against metaphysico-teleological, view of the Universe. The primacy of being admitted, the next necessary step is to reduce it to a common denominator—matter; and the conception of matter itself runs the risk of being transformed into a metaphysical category, as for example, Spinoza's "Substance", unless it is expressed in material terms, that is, in terms of physics, mechanics and mathematics. Ultimately, philosophy came triumphantly out of the spiritual confusion of the middle-ages, to stand firmly on the foundation of the ancient materialism of Democritus and Epicurus. It was on the basis of atomism, revised by himself, that Descartes rested his mechanistic cosmology, thereby giving birth to modern philosophy as well as physics.

When Berkeley combatted materialism as "the repugnant source of atheism and irreligion", it was still in an embryonic form, still to be demonstrated by the development of natural sciences. The position of philosophy in his time was as follows:

Our senses inform us of some sensible qualities, such as extension, colour, solidity etc. But logic teaches that these qualities must be the qualities of something; they cannot exist as abstract extension, colour or solidity, as taught by Plato. There must be something extended, coloured, solid, etc. What is that something? The answer to this question cannot be given speculatively. By raising this question, philosophy prepared the ground for the natural sciences. Mere contemplation of nature was no longer adequate for the extension of human knowledge. The objects themselves should be subjected to

examination. But at the time of Berkeley, sciences were not yet able to answer conclusively the question raised by philosophy. Philosophers, who had broken away from theology and were searching for a physical and rational explanation of the world, generally admitted that there was a substratum of all the perceptible qualities. They called it the substance. But they pleaded ignorance about its nature, because it was beyond human comprehension. Nevertheless, they were forced to admit the existence of a material substratum as a support for all the qualities which could be comprehended. All the sensible qualities were inherent in the substance. The necessity for some .synthesis of the attributes led to the inference of the existence of matter.

The fallacy and weakness of that position of contemporary philosophy enabled Berkeley to make the synthesis a mental one, and thus get rid of matter. The backwardness of the science of psychology and consequently of the theory of cognition made Berkeley's idealism possible. But as soon as the discoveries of natural science destroyed all doubt regarding the objective existence of things outside, and physiology demonstrated how these things are perceived by our senses, idealism was compelled to shift its ground; it gave up the common-sense view of Berkeley, and plunged into the fever-fantasies of Hegel and the pantheism of Schelling, thereby liquidating philosophy as such.

Even Berkeley himself could hold his ground against materialism only by abandoning philosophy in favour of anthropomorphic religion. Until his time, metaphysics had maintained that ideas were the appearances of things. Only the appearances are immediately known. As a practical man, Berkeley did not deny the existence of things immediately perceived, but maintained that they were nothing more than reflexions of the ideas of the perceiver. Hence his famous thesis "esse est percipe" (existence is to be perceived). He argued that appearances immediately known to us are the only reality. They are not appear-

ances, but the real things. Only ideas are immediately known to us. Therefore, only ideas are things. By this argument, he tried to go around the question regarding the substance behind the appearances. Moreover, as regards the source of the sense-perceptions, he fell back upon the good old idea of God. God has endowed our mind with the faculty of having perceptions—ideas—out of nothing. The substance is spiritual.

Berkeley's boundless idealism, which outraged common-sense, rose as a reaction against scepticism inherent in the Sensationalist philosophy of Hobbes and Locke, and also against the materialistic implications of the teachings of the fathers ot modern idealism—Descartes and Spinoza. These latter had constructed their universal systems on the foundation of the concept of "substance" which provided a sound basis for materialism. In view of the dangers, inherent in Cartesian metaphysics, the pantheism of Spinoza and even in the new theology of Leibniz, Berkeley expounded what could be called "pure idealism" by rejecting the concept of substance in favour of a known cause. He denied the existence of matter as the substratum of sensible qualities, which, according to Locke, was a necessary inference from the knowledge of qualities. While proclaiming the existence of a material substratum, Locke had nevertheless declared it to be unknowable. Berkeley seized upon that sceptic element in Locke's philosophy. He contended that only the sense-perceptions are given to us. Anything beyond it, is pure metaphysics. He rejected the "unknown" substance as the phantom of the "Noumenon."

Thus, apparently, Berkeley's idealism is not only a common-sense philosophy, but eminently realistic. But there still remains the question about the source of perception. What causes it? His answer, though very dogmatic, is not convincing. He maintains that "our ideas are produced in us conformably with the laws of nature. These laws have been ordained by God. To suppose that matter is the mere occasional cause—the vehicle through

which the laws of nature operate—is gratuitous. The existence of matter cannot Be established either by intuition or by inference; the notion is full of contradictions. Whereas the existence of spirit is known directly; and spirit is God. The agency of the Creator is therefore more simple and direct. He had no need of creating first laws, and afterwards matter, through which these laws should come into effect. He thought, and his thought reflected itself in us directly without the superfluous aid of matter as a mere go-between."*

Berkeley thus liquidated philosophy in order to combat materialism. His idealism is no philosophy; it is a mere reassertion of theology. Having arbitrarily denied the objective existence of matter, he goes on to disprove the objective existence of "things directly perceived". "What are the objects but the things which we perceive by sense?" This is a very plausible attitude. But the next question is a dogmatic assertion. "And what do we perceive besides our ideas or sensations?" In the absence of scientific psychology, the answer to this question would be necessarily ambiguous. That ambiguity was seized upon by idealism, and Berkeley triumphantly challenged:, "Is it not plainly repugnant that anyone of these ideas should exist unperceived?" It is evident how he confuses ideas with things. Materialism does not maintain that ideas exist objectively outside of our mind. That is a contention of the oldest form of idealism—Platonism.

The critical aspect of Berkeley's doctrine, however, is very cogent, thanks to the half-hear ted ness of the Sensationalist materialism. He argued: "The substratum, confessedly unknown, is a mere abstraction. If it is unknown and unknowable, it is a figment. It is a figment worse than useless. It is pernicious, as the basis of all atheism. If by matter you understand that which is seen, felt, tasted and touched, then, I say matter exists. If, on the

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**Treatise Concerning the Principles of Human Knowledge.*

contrary, you understand by matter that occult substance which is not seen, not felt, not tasted and not touched, that of which the senses do not, cannot, inform you—then, I say I don't believe in matter."

The militant Bishop took advantage of the timidity of his opponents and turned the tables against them. But to-day, his arguments have no force. To-day, the existence of matter is no longer relegated to the region of the occult; it is a perfectly known and knowable substance. The reflection could be considered as the only reality, so long as the things reflected were declared to be unknown, and even unknowable. In that backward state of the theory of cognition, it was not possible to assert that the-sense-perceptions were true reflections of outside objects. By removing all possible doubt regarding the objective reality of the outside world, experimental science has knocked the ground under the feet of idealism.

Berkeley was eminently practical. He did not deny the existence of things which are immediately perceived. He waged war against the Cartesian and Spinozist conception of substance which lent itself to the theory of a material substratum as the origin of everything. That basis of materialist philosophy Berkeley desired to destroy, and replace it by a Divine Will as the cause of everything. But once the existence of immediately perceptible things is admitted, a common source of their origin is a logical conclusion. Therefore, he argued: "I do not argue against the existence of any one thing that *we* can apprehend either by sensation or reflection. That the things I see with my eyes and touch with my hands do exist, really exist, I make not the least question. The only thing whose existence I deny, is that which philosophers call matter or corporeal substance." The fallacy of the argument is obvious. The things exist, but not the substance out of which they are made. The things are there, simply because God has caused them to be there. That is no philosophy.

Berkeley was correct to hold that, in the absence of

mind, no perception is possible; that is to say, in that case, outside objects are practically non-existent. A stone has no perception of a tree. Therefore, the one cannot be conscious of the other. All this is very simple. But the counter-part of this correct and simple view is altogether false. The inability of the stone to perceive the existence of the tree does not sweep the latter out of the world of objective being. Perceptions are dependent upon our senses; ideation is a property of the brain; but it does not follow therefrom that perceptions and ideas are purely mental phenomena, independent of things objectively existing outside. Still, this is what Berkeley maintained.

If you admit that the table, stone, tree, etc., really exist, you cannot avoid the logical necessity of reducing them all to a common source of origin, unless you are prepared to abandon all claim to scientific thought. Berkeley could not be expected to do so, and still pretend to be a philosopher. He did reduce the complex to a simple, the particular to a general, the many to one, the diversity to unity; only he traced the origin of material things—table, stone, tree etc.—to a "spiritual substance". So, his whole philosophy is based upon the prejudice of creation out of nothing. Material things are made out of spirit—conjured out of nothing. Full-fledged idealism, which does not bother to be practical or be guided by common-sense, is more logical, more scientific than this crude magic. It boldly denies that anything exists but absolute idea, and declares the phenomenal world as illusion, hallucination or at best "expression of the idea" (Hegel). But, first to admit the material existence of particular things, and then deny a material substratum of them all, is a stupendous absurdity. The trick by which Berkeley seeks to make this absurdity appear plausible, does not convince anyone except those who believe in a permanent miracle.

My knowledge of the table is conditional upon its sensible qualities; my idea of it is formed out of the image

it throws on the retina of my eyes; so, I must be satisfied with the image, call it the real thing, and let the table itself get dissolved into its "spiritual substratum"! That is the substance of Berkeley's philosophy. And all the diverse schools of modern scientific idealism still stick to that position in one way or other.

In his zeal to endow faith with a deceptive shine of philosophy and reason, Berkeley went a bit too far and ruined his whole system. He argued: "The *esse* (being) of every idea is perception; it is not possible to separate, <even in thought, any of our ideas from perception; their being consists in being perceived."

Now, perception, which is the essence of ideas, implies the existence of a thing perceived. Granting that our ideas are not exact representations or images of the things, the objective existence of the latter is by no means disproved. It is simply silly to endow the shadow with reality on the plea that we do not know the substance fully well. Philosophy should rather set about the task of finding the ways and means of knowing the substance, .and test the veracity of the shadow by the standard of the .knowledge of the substance. That is, philosophy should reject speculation as an inadequate means of acquiring knowledge, and strengthen itself with the help of experimental science.

The basic contradiction of Berkeley's philosophy is that it reinforces the doctrine of the identity of thought and being, a doctrine which destroys idealism. This basic contradiction of the system is overcome by reconciling the reality of the existence of immediately perceptible things with the doctrine of a spiritual substance as their common substratum. Things do not exist except in perception. This doctrine would lead to such absurdity as to maintain that the New World did not exist before Columbus discovered it. Berkeley avoids such an absurd consequence by an equally absurd expedience—the eternal perception by the eternal spirit. So, things, after all, do not exist actually, except as bubbles in the ocean of the

eternal spirit. This, therefore, is the real being, and the rest is fleeting phenomena.

Liberated from the assumption of the "eternal spirit", these arguments of Berkeley lead to atheism against which he was waging the war. "All our knowledge of objects is a knowledge of ideas; objects and ideas are the same; therefore, nothing exists but what is perceived."

Materialism fully agrees with this conclusion, but turns it as a deadly weapon against Berkeley's idealism. Neither God nor eternal spirit exists, because it cannot be perceived by man. Since the whole system of Berkeley rested precariously on the belief in the existence of God and the eternal spirit, by disproving their existence, it •destroys itself.

Berkeley's system, as all non-materialist philosophy, stands or falls with the conception of consciousness. It has a logical appearance as long as consciousness is admitted to be an independent entity or function or property, antecedent to perception, the latter affecting it immediately. But deny such an *a priori* consciousness, as the knowledge of modern physiology forces you to do, and idealism becomes an absurdity. Because, consciousness is nothing but the sum total of sense-perceptions; it is the immediate result of external influences upon an organism. Mind is not an independent entity. It is simply a property of organic matter.

The credit of having freed philosophy from the unhealthy atmosphere of dualism, belongs to Berkeley. All l.he modern philosophers before him were tied to scholasticism by the bond of dualism. By replacing the material substratum of the world with the "spiritual substance", and identifying it with God, Berkeley discarded dualism. **In** consequence, the issue between idealism and materialism became sharper than ever. Idealism, as a monist philosophy, developed magnificently and tried to overcome its antagonist; but freed from dualism, it had no fcasis. The only serious opposition to materialism is the

doctrine of creation. Idealism cannot subscribe to the doctrine of something coming out of nothing without giving up the claim to be philosophy. By developing the monist conception of the world to the extreme of pantheism, it merges itself into materialism. That was done later by Spinoza.

The other great exponent of a modern school of metaphysics is Kant. But he decidedly disagreed with the view that the phenomenal world is the product of our ideas. Very significantly, he characterises Berkeley as looking for a new prop for his distressed faith. Though known as the founder of the school of "Transcendental Idealism", Kant, in reality, made great contributions to the development of materialism. The very foundation of his philosophy was materialistic. Primarily a mathematician, he was profoundly influenced by Newton, whose mechanistic view of the Universe culminated in the Nebular Theory associated with the name of Kant and the-French mathematician Laplace. About Kant's great achievement in this respect, the famous German astronomer Hemlholtz wrote: "It was Kant who, feeling great interest in the physical description of the earth, and the planetary system, had undertaken the laborious study of the works of Newton; and as an evidence of the depth to which he had penetrated into the fundamental ideas of Newton, seized the masterly idea that the same attractive force of all ponderable matter, which now supports the motion of the planets, must also aforetime have been able to form the planetary system from matters loosely scattered in space."

In his most important work, *General History of Nature and Theory of ihe Heavens,* Kant proposed "to discuss the constitution and the mechanical origin of the whole Universe, according to Newton's principles, and to explain them mechanically by the natural course of development, to the exclusion of all miracles."

With such a view of the origin of the Universe, one could not possibly tolerate religious prejudices and

dogmas on the basic question regarding the relation between man and nature. The Nebular Theory of Kant definitely disposed of the Creator. When Kant set out to reform philosophy by combatting metaphysics, he undertook, objectively and historically, no other task than to drive religious faiths out of their "scientific and philosophical" entrenchments. The *Critique of Pure Reason* was an attack upon the lingering faith in a super-natural, super-sensual force.

The cardinal principle of Kant's philosophy is that all knowledge is necessarily based upon experience; there is no eternal truth, no absolute idea. There is very little difference with materialism. Kant himself emphasises the materialist point of departure of his philosophy. "The proposition of all genuine idealists, from the Eleatic school to Bishop Berkeley, is staled in the formula that all cognition through sense and experience is mere appearance; the truth can be reached only through pure understanding and Pure Reason. The principle governing my idealism is: all cognition through pure understanding and Pure Reason is nothing but appearance, and truth is in experience only."* Kant characterises the so-called cognition through Pure Reason as "the dangerous province of creation out of nothing—wide and stormy ocean, the true home of mirage." He further maintains that "all ideas that seek to penetrate the sphere beyond our experience are mere delusions."

Having subjected the Pure Reason of metaphysics to his "all-shattering criticism", Kant proceeds to build up not only a new system of metaphysics, but actually lays the foundation of a new religion. The postulate of the "thing-in-itself", and the "categorical imperatives" are arbitrarily built super-structures which cannot be reconciled with the clearly materialistic foundation of Kant's philosophy. As a philosopher, he was a materialist; but as the prophet of a new religion, he had to fall back upon

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* *Prolegomena.*

illusions and fantasies which he himself had combatted as a philosopher. So very contradictory are the two parts of Kant's philosophy, that a learned Kantian is constrained to write:

"That there exist things in themselves, which have a spaceless and timeless existence, Kant could never prove to us out of his principles, for that would be transcendental, even though negative knowledge of the properties of the things in themselves, and such a knowledge, on Kant's own theory, is entirely impossible."*

In order to avoid carrying his critical thought to its Jogical consequences, Kant took refuge in scepticism—the convenient harbour for all shame-faced materialists. Through his lapse into scepticism, which so flagrantly ill-fits the critical mind of the "reformer of philosophy", Karit changes the whole nature of his system. It is his *salto mortale*. He accomplishes the task of freeing philosophy from the domination of theology; but on the other hand, brings the Supreme Being out of the museum of history and places it beyond the pretensions of experimental reason to which he grants supremacy in the phenomenal world.

The repudiation of the super-natural in human knowledge was the point of departure of Kant's philosophy. It necessarily led up to the alternatives of scepticism and materialism. Scepticism is a negative point of view; no philosophical system can be built upon a negative principle. If one cannot decidedly discard faith, he as sure to relapse into it sooner or later. Then, faith is transformed into something "positive", in the shape of "mystical morality" or pantheism. Both these grew out ol Kant's philosophy. He himself founded a new system of mystical morality with transcendental sanctions. The latter course was followed by his disciple Schopenhauer.

The negative outcome of Kant's philosophy was .determined by the conditions of his time. Socially,

*Lange, *History of Materialism.*

Germany was more backward than England and France, where materialism made tremendous headway in the seventeenth and eighteenth century. Since the stormy days of the Reformation, the country laid exhausted. Economic life was practically stagnant. The positive outcome of the great Peasant War had been the strengthening of the petty princes who exercised their feudal power and privileges, ruining the country economically as well as politically. There was no striving for a National State in antagonism to the Universal Power of the Church and its secular arm, the Holy Roman Empire. Nevertheless, the shock of the Great French Revolution was felt also in Germany. The enlightenment radiated from France and penetrated the sluggish darkness of Central Europe. Kant was a result thereof. But he could not rise above the conditions in which he lived. His thoughts were determined by them. From the very beginning, Kant fought on two fronts—against scholastic metaphysics, which obstructed social progress, and, on the other hand, against materialism which would eventually create a revolutionary ferment among the people. In the preface to the second edition of the *Critique of Pure Reason,* he had written:; "I cannot recognise God, freedom and immortality as necessary for any practical use for my reason." Yet, towards the end of his life, he declared: "I must curb knowledge in order to find room for faith."

He further wrote: "The mortal life must always be brightened by the hope of a future existence. Only this way it will be possible to root out materialism, fatalism, atheism, free-thinking, disbelief, dreams and superstitions, which are likely to be generally harmful." That may be taken as a declaration of faith; but this confusion of everything also indicates a deplorable mental degeneration on die part of the "all-shattering" critic.

Kant's transcendental Idealism admittedly ends in religion. He found it necessary to "curb knowledge irr order to make room for faith." Had the admission been not forthcoming, from^ Kant himself, even then, no

mistake could possibly be made about the logical conclusions of his philosophy. The admittance of transcendental categories presupposes faith; for, by their very nature, they are beyond the reach of the human mind. They can never be known; they are unknowable; they must be taken for granted. A critic summarises Kantian transcendentalism as follows: "How does the mind approach things totally different from itself? This is how Kant evades the difficulty: The mind possesses certain a *priori* cognitive forms, by virtue of which things must appear as they do. Hence, the fact that we understand facts as we do is due to our own creative power; for, mind which lives in us is a part of a divine mind, and just as God treated the world out of nothing, so the human mind creates out of certain things something which they do not possess. . . . The soul is a necessary prerequisite for Kant, because immortality is (o him a moral precept.' (Albrecht Rau, *Investigation of Nature and Contemporary Critical Philosophy.*)

Kant's transcendental Idealism marks out the philosophical reaction against the revolutionary thought of the seventeenth and eighteenth centuries. That was a period of great revolutionary events; consequently, philosophy necessarily moved towards materialism. While transforming the world, the European bourgeoisie thought dynamically. By the beginning of the nineteenth century, the victory of the bourgeoisie was practically complete. The world had been transformed to suit their purpose. Now they wanted to enjoy power. They completely abandoned the revolutionary philosophy of Materialism, and became devout defenders of religion. Kerkelev's Idealism was a very thinly veiled religion. It was too frank and honest to suit the purpose of the nineteenth century, when one could not possibly prefer religion to science, and yet be taken seriously as a philosopher. It was necessary ;o create an atmosphere of sophistry and confusion. Philosophy must keep an apparent connection with science. That was done by Kant. Starting from Hume's agnosticism.

Kant's positive thought moved towards Materialism, but ended by reverting to a position very much like Berkeley's. To say that the thing-in-itself is unknowable, is exactly to deny the objective reality of things as Berkeley did. The difference between the two great apostles of philosophical reaction is that, while Berkeley's clericalism permitted him simply to deny the objective reality of things, Kant, as an avowed empiricist, and quasi materialist (in the beginning), could not do that in a straightforward manner. Things in themselves exist, but transscendentally. Transcendental) that is, non-material categories, cannot be accessible to the material organs of human knowledge. To get around the difficulty, certain " *priori* attributes of the mind are postulated. The soul is reintroduced in epistemology. Truth is attainable only when the divine light of an immaterial soul *(a priori* attributes of the mind) shines behind the mind. The human mind can know absolute truth only when it is revealed. The Kantian thing-in-itself, as correctly pointed out by a critic, "spans the gap between Materialism and Idealism." (Ibid.) The subterfuge of the conception of the thing-in-itself is the bridge which enables the empiricist to step quietly, and with little qualm of conscience, over to the realm of wild speculation, mysticism, faith and religion. And practically all the various schools of contemporary philosophy have made greater or less use of the convenient bridge of Kantianism to enter the Kingdom of Heaven—to maintain a spiritualist view of life— without openly breaking the connection with scientific knowledge.

Hegel complained that "this paltry doctrine"—that' "we do not and cannot know realities—"now dominates philosophy." After nearly hundred years, in the face of the vast store of knowledge accumulated by experimental science, academic philosophy is still dominated by the same "paltry doctrine". Never have the two departments of human activity been so completely separated in water-light compartments. The theory of life clings to old

prejudices, disregarding lessons derived from practice. The theory of life thus hangs entirely in the air, feeds itself ou idle speculations and wild fantasies. While ever increasing activities of the civilised man progressively enlarge his knowledge of the laws of nature, thereby reinforcing the position of Materialism, official philosophy obstinately wears glasses coloured with obscurantism.

This curious position of philosophy, by the middle of the nineteenth century, was very succinctly stated by Haeckel, who summarised the principles of epistemology established firmly by modern science as follows: "Knowledge is a physiological process, with the brain for its anatomical organ. The part of the human brain in which knowledge is exclusively engendered is the most perfect dynamo machine, whose constituent parts are millions of physical cells. Just as in any other organ of the body, so also in this, the function of the given part of the brain is-a final result of the functions of its constituent parts." In contrast to this scientific view, idealist epistemology, as summarised by Haeckel, was as follows: "Knowledge is not a physiological, but a purely spiritual process. The part of the human brain which seems to act as the organ of knowledge is really only the instrument through which the spiritual process operates. The organ of reason is not autonomous. Together with its constituent parts, it only serves as the medium between the non-material spirit and the outer world." (Ernst Haeckel, *The Wonder of Life*).

The historical necessity of materialism, however, was proved by Kant himself, who, in order to fight the potential enemy, had to build up a philosophical system clearly on a materialistic foundation. When it becomes necessary to use materialism for fighting materialism, only the imperiousness of materialism is established. The sophistic super-structure of Kant's philosophy has been relegated to the dusty shelf of the Classics. But its materialist foundation stands firm as a mile-stone of the intellectual progress of modern times. Every great thinker, who contributed anything permanent to human progress,

advanced the cause of materialism, even if he were art avowed enemy of materialism. This proves that materialism is the driving force of all human progress.

The greatest of modern idealist philosophers, Hegel, liquidated idealism by developing it to its logical conclusion. His Absolute Idealism freed philosophy from the fallacy of dualism, and established a monism which was either pantheism or materialism. Hegel rejected the Kantian doctrine of the thing-in-itself. "The thing-in-tself is the empty abstraction from all conditions, and just because it is thus removed from all conditions, it is removed from all knowledge." He maintains that "the phenomenon is not the unsubstantial phantom of an unknowable, but its actual manifestation—the reality of the essence."

Idealist philosophy previously (Leibniz, Berkeley, Fichte and Schelling) traced the root of idea to something external—"pre-established harmony", "action of deity", "impulse" or "intellectual intuition". Hegel shattered the dualism which had thus vitiated idealism, by making his "notion" the self-existing primary element. It is something like Spinoza's substance. So, God or a super-natural source of the Universe was eliminated; metaphysical speculation committed suicide. Nevertheless, Hegel was not free from the prejudice of God; but he placed that unnecessary adjunct at the tail-end of things. The Universe is not the product of God. God comes into being only when the Absolute Idea has finished its process of self-development. God comes into existence when "notion" develops itself into self-consciousness. So, the God is a creation of Hegel. There could be no more conclusive proof of the old dictum that man makes God after his own image. The implication of the Hegelian conception of God is very far-reaching. Firstly, God does not exist objectively. The conception is a result of the evolution of thought. Secondly, "notion" realises into self-consciousness in every individual. The man becomes God, no longer bound by the process of nature. Nature

is there for him no longer to wonder at and speculate about, but to conquer. The magnificent suicide of classical idealistic philosophy celebrates the final triumph of materialism.

Hegel rejects the theological notion that God created the world. He holds that the creation is not an act, but an eternal movement—not a thing done, but a perpetual process of becoming. This is not creation out of nothing. It is as if nothing becoming something. And this apparent paradox is possible because absolute being, that is something in the state of unconditionedness and nothing are identical. In plain scientific language, Hegel's doctrine means, if it means anything, that creation is simply an eternal process of evolution out of a primal existence which contains the germs of everything.

While liquidating the idealist philosophy, Hegel also laid down certain principles of a new philosophy with great potentialities either for good or evil. He declared: "Everything real is rational; and everything rational is real." But Hegel does not consider everything in existence to be real, unconditionally. According to him, reality is an attribute only of what is necessary at the same time. "Reality of a thing is demonstrated by its being necessary." What is necessary is, in the last analysis, always found to be rational. So, necessity is the ultimate standard. As long as a thing is necessary, it is rational; and so long as it is rational, it is a reality. The corollary to this is: As soon as a thing ceases to be necessary, it is no longer rational, and therefore forfeits the right to exist. Moreover, the character of reality does not belong to any social or political order under all conditions and in all times. That is to say, something real to-day becomes unreal in course of time, under altered circumstances. In their respective times, and under the given conditions, both things are equally real, and rational in so far as they are necessary. But judged by the constantly changing standard of necessity, the old reality ceases to be rational and thus becomes

unreal, to be replaced by the new reality which is rational because of its being necessary. The Roman Republic, for example, was real; so also was the Roman Empire which replaced it. In course of evolution, a real thing loses its reality because it ceases to be necessary. It becomes irrational, and must be replaced by a new thing which is rational and real, because it has become necessary. So continues the process *ad infinitum.* This is the Hegelian dialectic law of history.

Learning from old Heraclitus, Hegel declared change itself to be a reality. "Everything that is, is real." This view makes a revolution in the conception of the history of mankind—spiritual as well as material. History is seen in a process of continuous changes, each stage of which is as real as the other, and, as realities, are necessary, that is effects of causes. Ideal changes are no less xeal than material changes. Thus, in Hegel's Idealism, idea ceases to be absolute. Dialectics destroys Hegel's absolute idealism.

Marx and Engels took over this aspect of Hegel's philosophy as the "algebra of revolution". Science provided the materialist philosophy with a solid foundation of the knowledge of nature. The evolution of pure thought, on the other hand, culminated in the formulation of a new method of reasoning which reinforced materialism logically. Modern materialist thus triumphed as the inevitable outcome of the entire process of intellectual development ever since the dawn of history. It is the greatest human heritage.

CHAPTER V

Post-Hegelian Philosophy

SCEPTICISM, AGNOSTICISM AND POSITIVISM

THE cardinal principle common to all the fashionable schools of modern philosophy is a more or less honest, more or less confused, more or less obscurantist, version of the dictum of the good old divine, Bishop Berkeley: "*It* is indeed an opinion strangely prevailing amongst men. that houses, mountains, rivers and, in a word, all sensible objects have an existence, natural or real, distinct from their being perceived by the understanding. What are the objects but the things we perceive by sense? And what do we perceive besides our own ideas or sensations?" *(Principles of Human Knowledge).* The world does not exist except as a reflection of our ideas; it has no objective reality; and our ideas, according to Berkeley, are inspired in us by God.

Since the closing decades of the last century, a large variety of philosophical schools and tendencies has. flourished, essentially holding on to the above Berkeleyaa position, yet professing to have empirical knowledge for their foundation and disowning allegiance to Idealism. The more important of those apparently non-idealistic scientific schools of philosophy are: the neo-Lamarckian, Vitalists, neo-Kantians, Positivists, Empirio-Critics, Pheno-menalists, Immanentists, Symbolists and Pragmatists. The difference of some from the others of these various groups is often rather of shades of an identical view than of the view itself. Their similarity is greater than their diversity, the first being essential while the latter only in form. Practically all of them have for the point of departure either the epistemological axiom of Berkeley or the Agnosticism of Hume. They are all essentially idealistic, lead-

ing up, some covertly, others frankly, to spiritualism, religion, faith. All of them look down upon Materialism as a "naive, crude and mechanical" view. They take up the position of neutrality, disregarding the fact that the history of human thought is the history of the struggle between Idealism and Materialism, between religion and science, between faith and knowledge. There is no half-way house. Neutrality is not possible between a reactionary ideology and a revolutionary philosophy. There is no philosophy cut off from the activities of life. Philosophy must either be ideological apology for the established order, or raise the voice of freedom for the down-trodden; it must be either idealist or materialist.

In the middle of the nineteenth century, the spectre of Materialism cast its ominous shadow over Europe. The ruling classes were terrified by the voice of revolution growing more and more authoritative and capturing larger attention. Official academic philosophy was thrown into a great confusion, and the most reactionary tendencies became its predominating feature. After Hegel, Schelling became the official philosopher of Germany. The logical consequence of Hegel's philosophy terrified the German ruling class. His successor brought official academic philosophy back from the dangerous path, opened up before it by the admirable irresponsibility and inconsistency of Hegel's encyclopedic mind. His absolute Idealism only required to be set in the correct posture to merge itself in Materialism, Hegel, and Spinoza before him, were the two greatest idealist philosophers of the modern time; and both of them all but liquidated Idealism, proving thereby that philosophy, to perform its function, must be identical with Materialism.

Schelling set aside Hegel's absolute Idealism, and expounded what he called "positive Idealism" or the "philosophy of revelation" (Ofrenbarungsphilosophie). This is how he defined the new philosophy, which was joyfully welcomed by the ruling class frightened by the phantom of Hegelianism and the revolution, of 1848:

"Unless Idealism is reared upon the basis of a Using realism, it wilt remain an empty isolated system like that of Leibniz or Spinoza, or any other dogmatic system. So long as the God of modern Theism remains a simple Being, which should be the pure essence of all being, but is in fact itself devoid of all essence—as He is in all modern systems; so long as a real duality is not recognised in God—unless the contracting, negative power is opposed by a positive and expanding; so long the denial of a personal God will be scientifically tenable." (Schelling, *On the Nature of Human Freedom),*

The passage quoted above sets forth clearly and without any subterfuge, as is done by many a modern idealist, the identity of Idealism with religion—to the extent of requiring an out-and-out anthropomorphic conception of God for its basis. Just as Ramanuja's *Vishistadwaitawada* had followed the nihilistic scholasticism of Sankaracharya, just so did Schilling's doctrine of "real duality in God" come after the absolute Idealism of Hegel. When metaphysical speculation attains the point of absolute monism, it. must either consume itself, thus enabling philosophy to strike out a new path—of Materialism; or revert to the dualistic position, thereby abandoning the ground of philosophy. Absolute spiritualist monism is a contradiction in terms. The logical conclusion of that contradiction is nihilism—nothing exists, can possibly exist. Spirit, in order to be what it is claimed to be, must be not only immaterial, but simple, devoid of all attributes. Nothing tangible can possibly come out of that state. Absolute monism of the idealist, therefore, must declare the world to be a vast madhouse—full of delirious beings who are themselves delirium! Intoxicated with his scholastic skill, Sankaracharya did take up this unbelievably absurd position, but only to climb down to the abject depth of vulgar idolatry. The flagrant contradictions of his teachings were set aside by Ramaunja, who admitted that one cannot have both philosophy and religion; that reason and faith are irreconcilable. He skilfully exposed the

subterfuge of Sankaracharya and honestly proclaimed that he preferred religion to philosophy.

Schelling did the same for Europe. He also re-established religion on the ruins of idealist philosophy. The only difference is, and this is a decisive difference, that India was not in a position to strike out a new philosophical path aided by the all-shattering scholasticism of Sankaracharya, as Europe did with Hegel's philosophy. The ruling class do not want philosophy except as a I docile damsel prostituting herself in the temple of God. The successful challenge against absolute categories in the realm of epistemology inspires the courage to challenge absolute power on earth. The restitution of the absolute in the ideological domain was, therefore, necessary for the defence of the privileged position of the ruling class. Hegel had destroyed, though in a mystified manner, the transcendental, categorical imperatives of Kant. Scheliing boldly trotted out the traditional conception of God, and declared that truth could be known only through revelation—is attainable only if and when revealed by the Grace of God.

Of course, all the modern idealist philosophers were not so extravagant as Schelling. In England, for example, they expounded a similar doctrine with soberness and with the traditional English virtue of commonsense. In the nineteenth century, England was not so dangerously assailed by revolution as the continental countries. The materialist thought had ceased to be a force in the birth-place of modern Materialism. The seventeenth century was nearly lost in history. Berkeley had re-established the Church of England. Hume's scepticism had provided a safety valve, and the Scottish school of Commonsense philosophy had counter-balanced the shock of Berkeley's mediaevalism. So, it was possible for philosophy to maintain the philosophic aloofness. Yet, Idealism is Idealism—religion in a rationalised form. That is how it appeared in England in the nineteenth century. Green wrote: "The old question, why God made the world? has never been

answered, nor will be. We know not why the world should be; we only know that it is. In like manner, we know not why the eternal, subject of that world should reproduce itself, through certain processes of the world as the spirit of man- kind, or as the particular self of this or that man in whom the spirit of mankind operates. We can only say that, upon the best analysis we can make of our experience, it seems that it does."

An authoritative philosopher in the enlightened days of the nineteenth century does not dispute the old belief that God made the world! This dogma is taken for granted, notwithstanding the vast store of scientific knowledge accumulated since the fifteenth century. The unanswerable and annoying question, why God made the world? is approached with the pretence of philosophic aloofness, only to be brushed aside. Yet, no rational human being can be expected to accept the basic dogma as an axiomatic truth, unless a satisfactory answer to the question is available. We believe that the world is created by God; but we do not know why he did it. We cannot deny the world. Therefore we draw the conclusion that some inscrutable purpose governs everything, and we have no other choice than to accept the world as it is—as a divinely ordained moral order.

The challenge of Materialism, however, could not be effectively taken up by a guarded language. Idealism had to speak out frankly. Samuel Butler, for example, passionately disclaimed:

"A spirit of most misjudging contempt has for many years become fashionable towards the metaphysical contemplation of the earlier sages. Is it, then, a matter to be exulted in that we have at length discovered that our faculties are only formed for the earth and earthly phenomena? Are we to rejoice at our own limitations, and delight that we can be cogently demonstrated to be prisoners of sense, and the facts of sense? In those early struggles for a higher and more perfect knowledge, and in forgetfulness of every inferior science, through the very

ardour of the pursuit, there is at least a glorious, and irresistible testimony to the loftiest destinies of man; and it might almost be pronounced that in such a view, their very errors evidence a higher truth than all our discoveries can disclose."

Schelling's religious philosophy failed to vanquish the evil spirit of science, which continued its triumphal march. The terrified, dejected and sulky mood of the ruling class was represented by the pessimism and cynicism of Schopenhauer. Recovering from the shock of the revolution of 1848, the European ruling class went over to the offensive on the ideological as well as on the political front. Learned professors took up the task of harnessing science to the cause of reaction. In the land of Leibniz, Kant, Hegel and Goethe, the honourable mantle of the official philosopher fell upon the doughty shoulders of a Prussian drill-sergeant, Lieutenant von Hartmann, who expounded the "philosophy of the unconscious". So aggressively reactionary and frankly religious was the philosophy of Hartmann, that even the neo-Kantian Lange characterised it as "the cult of the charcoal-burner"—that is to say, analogous to the superstitious faith of the primitive man. Whatever could not be explained by the old familiar dogmas of Idealism, was attributed by Hartmann to the "Unconscious". In his philosophy, the causal connection uniting the diverse phenomena of nature in a harmonious whole completely disappears. The religious conception of creation out of nothing returns to take the key position. As against the relative sensual knowledge, he vigorously defended the dogma of absolute knowledge; it is attainable in the sublimated state of "unconsciousness".

But in the age of science, one must talk in terms of science, to be taken at all seriously as a philosopher. Therefore, Hartmann also dabbled in science—to rationalise his philosophy of the unconscious *post factum*. He actually admitted that "for my reconciling modern natural science with Idealism, theology jinds a worthy comrade in me." Availing himself of the "crisis in physics", he

rejected what he called the "hylo-kinetic" principle of epistemology, that is, all physical phenomena are produced by matter in motion. He would not have anything to do even with the so-called "energetics" which, on the evidence of the then latest discoveries of physics, held motion or energy to be the basic element, visualising it as a material substance. Hartmaim accepted "dynamism"—the purely idealistic epistemological deduction from the "crisis of the atomic theory". Dynamism is the recognition of force without matter—a scientifically absurd doctrine claiming, origin also in the latest discoveries of physics. Motion without a substance moved is utterly inconceivable. One must step over the boundary of science—into the irresponsible and fantastic realm of spiritualism—to defend the possibility of such a conception. From the dynamist doctrine of epistemology, Hartmann inferred that "the laws of nature are an expression of the World Reason". *(The Cosmological Conception of Modem Physics).* The laws of nature are not physical, but psychical. The spiritual only exists. The physical world is either a non-existing illusion or, as Schelling held, the "self-contemplation of the absolute spirit".

But science, as the agency of real spiritual freedom, does not easily play in the hand of a reactionary philosophy. Hartmann had to admit that, in spite of the "crisis", the great majority of leading physicists held on to the hylo-kinetic principle of epistemology; and the "scientific philosopher" parted company with them, because "pure hylo-kinetics is menaced by Materialism and atheism." He apprived of energetics because it eliminated substance and thus was "an ally of pure dynamism". But he could not tolerate its agnostic attitude. Another neo-Kantian has described Hartmann's philosophy as follows:

"It is a neo-romantic reaction against the realism of natural science. Indeed, Hartmann accepts the atom as the basic form of matter; but in his opinion this element can be properly comprehended only when we visualise it as generating from an unconscious Will and Fancy.

Hartmann proposes to start from the scientific explanation of nature; yet, whenever he imagines to have detected a break in the chain of scientific knowledge, he introduces The magical means of the Unconscious. The Unconscious, of course, is the only, all-embracing, although impersonal, individuum; our philosopher avoids the name of God, because he wishes to steer clear of the anthropomorphic conception." (Vorlaender, *History of Philosophy*).

Positivism and Agnosticism are generally regarded as materialistic. It is true that these schools of scientific philosophy were not so rabidly anti-materialist and piously spiritualist as the other post-Hegelian schools of Idealism. Indeed, they were materialist in a rather shame-faced manner. Their very hesitation to take up an uncompromising materialist position compelled them to defend an epistemological thesis which let in Idealism. The common philosophical foundation of the positivist and agnostic thought, of all shades, is Hume's Scepticism. In philosophy, Scepticism does not lead to Materialism, but to the-opposite direction. This is classically demonstrated in the philosophy of Kant. The all-shattering reformer of philosophy ended in establishing a new religion of transcendental moral categories, because he had been shaken out of the theological tradition by the Scepticism of Hume. Scepticism denotes either a lack of sufficient data to establish a scientific theory conclusively, or an attempt to avoid the logical consequence, owing to ,the fear caused by the possibility of the theory. Both the factors were present in Kantian Scepticism. The natural sciences at the time of Kant left some place for the things-in-themselves, specially when a powerful mind was eager to find such a place. But Kant was big enough a scientist to foresee that it was a precarious position, which before long would be eliminated by the advance of scientific knowledge. Therefore, he relegated the unknown to the realm of the unknowable, thus securing it against any assault of science. The doubt about the God and soul of theology led to the negation of all super-natural existence. Alarmed by the

consequence of his own critical thought, Kant set up a super-sensuous world out of his own imagination.

Modern positivism was positive not in the sense of rejecting unverifiable spiritual notions, but in the sense of combatting what -was condemned as the "metaphysics of matter"—that is, the view that things have an objective being outside, and independent of, subjective perceptions. Thus, Positivism is a denial of the fundamental principle of Materialism. Once it is known that the physical Universe existed long before the appearance of life, it is simply absurd to ridicule the recognition of the objective reality of things as metaphysics of matter. Yet, the "scientific Positivists" defend this absurdity. Their argument is that what is immediately given to the human mind as the source of knowledge is sense-perception. That is the only *positive* object of human knowledge; our knowledge can be called positive only when it has for its basis something that exists positively. Now, to the average mind, this view might appear to be materialistic. But when we know that this apparently materialistic view is but an echo of the epistemological dictum of Berkeley, we must try to look behind the appearance.

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The Positivism of Auguste Comte greatly influenced philosophy in the first half of the nineteenth century. It was the only school in that period of rank reaction which pretended to stand upon the previous conquests of science and did not fall into sloppy sentimentality or religious revivalism clothed in a literary flourish. Yet, essentially it was a part of the reaction, being more rational in appearance and therefore more effective in the fight against Materialism. According to Comte, himself, Positivism, from the very beginning, was meant to be a "new religion", as it ultimately turned out to be. The object of Positivism was "condensation of all knowledge into a homogeneous body of doctrines, capable of supplying a Faith and consequently a polity." There could be no

policy, that is to say, social organisation, without a faith. I That is Positivism. According to it, all human relations and activities are determined and guided by the faith of man in some super-natural force. But faith had been, destroyed by the advance of revolutionary scientific knowledge. Therefore it must be restored with the help of the very agency which had discredited it. To perform this magic, was the task of the new philosophy.

"Comte learned to look upon the revolutionary work (of the French Revolution) as completed, and saw that the effort of the nineteenth century must be towards the reconstruction of society upon a new basis. The old faith was destroyed; a new faith was indispensable. Spiritual re-organisation, which is the necessary condition of all-social reorganisation, must repose upon the authority of demonstration; it must be based upon science; with a priesthood properly constituted out of the regenerated scientific class. In other words, the spiritual authority must issue from a philosophy which can be demonstrated, not a philosophy which is imaginary." (Lewes, *History of Philosophy).*

With the overthrow of the feudal order, old forms of religion and theology had gone out of fashion. The new bourgeois society needed a scientific religion, and even a scientific priesthood. Having undermined faith as a condition for the disruption of feudal monarchist relations, science was now to lay down the foundation of a new religion to guarantee the newly established social order. Materialist thought had served the purpose of the bourgeoisie; it should be now set aside.

The idea of a "demonstrable faith" was a foolish illusion, if not a cunning stratagem. A "spiritual authority" that could stand the test of verification should cease to be the object of faith, because such an authority would only be another, a misleading, name for experimentally established ideological principles. There can be either faith or knowledge as the guiding force of the human spirit. They are mutually exclusive. They cannot be

reconciled. We either know, or believe. Men are either guided by scientific theories and philosophical principles based thereon; or they are actuated by the faith in some power which they can never comprehend.

The apparently scientific and rationalist points of departure of Positivism were that it was to be a systematisation of all previous knowledge; that the knowledge of the first or final cause was beyond our faculties; that we can know only the laws of the phenomena; that it neither affirms nor denies the existence of the first or the final cause. It is apparent that these principles do not contain a single step in advance of Locke and Hume. On the contrary, they retained all the ambiguities and loopholes inherent in Sensationalism and Scepticism.

The last point—neutrality as regards the first or final cause—was of particular importance in this respect. It left the way clear for the new religion of Comte. In so far as the existence of that admittedly transcendental category was not denied, nothing could stop the speculation about it. And the very admission of a final or first cause beyond the reach of the human mind necessarily sets a definite limit to our knowledge, and consequently leaves ample room for faith which, under the given relationship inevitably assumes predominance. This was finally admitted by the dissenting followers of Comte, who in the beginning had maintained that the master's project of a new religion was not an integral part of the Positivist philosophy. "The latter development (of Comte's doctrines) was perfectly consistent with earlier speculations, and his whole life has been the one work of founding a polity on the basis of a demonstrated faith. The polity at first did not wear the aspect of a religion, but the transition was inevitable. The doctrine, which above yal! established a spiritual power, was in all its chief functions identical with religion." (Ibid.)

The critical attitude of the dissenters was sheer intellectual dishonesty. Had it been otherwise, they should have taken their own logic seriously, and parted company

with Positivism itself which, on their own evidence, contained all the essentials of a religion from the very beginning. Just as the Christian Dissenters remained Christians and churchmen, just so dissenters from the religious extravagances of Comte remained Positivists. One of them, for example, exclaimed: "We could all admit the deep importance of his to exalt every demonstrated truth into an element of religion, making all studies religious by disclosing their higher aim, so that even mathematics might become a part of morality."

Another dissenting Positivist also wrote: "To-day only the Positivists place the spiritual problem before Use striving for temporal things. The Positivist religion claims to be a resume of, and complete all previous religions. It differs from them only in having a basis of demonstrated truth. It resembles them in purpose. There is nothing in the conceptions of the most enlightened Christian which is not identical with Positivism; or conversely, there is little in Positivism which Christians do not and cannot accept." (Lewes, *History of Philosophy.)* Comte's Positivism combatted the quasi-Materialism of St. Simon and other early French Socialists and proclaimed that a social millennium could be attained only by "the philosophy which furnishes a common faith; the discipline of conduct is to be affected by a religious conception of duties."

Positivism profoundly influenced English thought in the middle of the nineteenth century. Materialism, originally born in England, had created the ideology of the great revolution in France. The reaction after the revolution reached England to drive thought-currents back into the narrow channel of religion and religiousity. All the great thinkers of the Victorian era—Bentham, the Mills, Hamilton, Spencer, Bain—were good Positivists, because they were all "enlightened Christians", or, as enlightened Christians", they found no difficulty in embracing the new scientific faith. Most of them were also followers of Hume.

John Stuart Mill was the most outstanding figure of the Positivist school in England. His utilitarian social views obscured his philosophy. Even judged from the point of view of his utilitarian social doctrine, Mill's philosophy was idealistic. Instead of refusing to talk about matter, because it is a "metaphysical conception". Mill takes up a rather ambiguous position, and defines matter as a "permanent possibility of sensation". It may appear difficult to understand the meaning of this rather non-committal aphorism. But the explanation is provided by a brother-positivist: "There can be no scientific objection to our classifying certain more or less permanent groups of sense-impressions together and terming them as matter; to do so, indeed, leads us very near to John Stuart Mill's definition of matter. But this definition of matter then leads us entirely away from matter as the thing which moves." (Karl Pearson, *The Grammar of Science.)*

That is very clear. The greatest philosopher of utilitarianism denies the existence of matter as an objective reality. According to him, the physical phenomena are merely groups of our sensations; in plain language, the world is the creation of our mind.

The Positivism of Mill, Spencer and Huxley nevertheless does lend itself to an apparently materialist interpretation. On the one hand, it rejects the logical conclusion of its premises, namely, Comte's "scientific religion"; and, on the other hand, it falls back on Hume's agnosticism for a positive foundation of its negation of matter as an objective reality. Starting from Hume, Kant's critical philosophy ended in transcendental Idealism. Agnosticism is the philosophy of ignorance, and ignorance is the mother of faith, the temple of God, the stronghold of religion.* Hume dismissed the conception of matter

*With a good deal of wit, Engels characterised "the learned followers of Hume as those who translate their ignorance into Greek, and call themselves Agnostics."

as "metaphysics", and advised philosophers to be content with sense-perceptions. But he could not prevent the inquisitive from asking the inconvenient question: What is there to be perceived by the senses? Hume did not directly deny the existence of things perceived. But he declared the speculation about their nature to be metaphysical, because we can never know them except through. the intermediary of our perception of them.

One school of modern Positivists (the Empirio-Critics) actually answered the question by saying that we perceive our own perceptions! But such a view cannot be taken seriously. Nor can the question be silenced. It raises its Mephistophelian head to torment thinkers and scientists, who are afraid of professing Materialism. The shadow of Berkeley falls across their mind; faith steps in whence reason is arbitrarily shut out. If our knowledge is not the reflection of things existing objectively, that is to say, independent of our perception, outside our mind, then it must come from the source Berkeley indicated—from the Will of God.

"According to Hume, Mill and all other Phenomenalists,* the causal relation has no substantiality, but is only a mental habit. From the fundamental thesis of Phenomenalism, only one conclusion is derivable—that nothing exists but sensations." (Abel Rev, *Contemporary Physical Theories).* So, in addition to denying the objective reality of a material substratum of the. physical phenomena, Positivism also rejects the other fundamental principle of Materialism, namely, the causal relation between thought and being. Rejection of causality cannot mean anything but the admission of teleology.

Another positivist school—neo-Kantism — is also wrongly considered to be a materialist tendency, because of its professed attempt to revive Kant's theory of

*The Agnostics were also so called because they held that the *noumenon* is beyond the reach of the human faculty of cognition.

cognition, freed from the "unnecessary" transcendentalism. Kant's philosophy, however, was a rounded up system. Notwithstanding its inner contradictions, the empirical and transcendental, the critical and practical, parts fitted into each other. The greatest achievement of Kant's philosophy is the recognition of the "thing-in-itself", that is, of the objective reality of the outside world. The fatal weakness is to declare the thing-in-itself to be "unknowable". Owing to this weakness, Kant's philosophy stultified itself, and served the purpose of laying the foundation for absolutist system of ethics. The positive element of Kant's philosophy—the recognition of the objective reality of the world—merged into the philosophy of Hegel, who carried it farther, and declared the things-in itself to be cognisable. This epistemological doctrine—the outcome of the entire classical philosophy—divested of the Hegelian idealist terminology, led up, through Feuerbach, to modern Materialism. So, it is not necessary to go back to Kant in order to revive the positive-critical elements of his teachings to serve as the basis for a scientific school of philosophy. Those elements are not lost. They have gone into the making of modern Materialism. A sincere appreciation of the critical elements of Kant's philosophy, freed from its dogmatic ethics, must express itself in the acceptance of Materialism as the only scientific philosophy possible. To revive Kant now, "therefore, would be a retrograde step; and purify of its faults, Kant's philosophy cannot stand as an independent system. It must either stand as a whole—as transcendental Idealism and dogmatic ethics—or merge itself into Materialism.

Neo-Kantism, therefore, is not Kant's teaching purified of transcendentalism and dogmatic ethics; it is Kant's theory of cognition torn away from its logical culmination—a materialist epistemology.

Leading neo-Kantians themselves admit that much. The central thesis of Albert Lange's *History of Materealism,* for instance, is to establish that a return to Kant's

theory of cognition was the only way to head off Materialism, which was menacing philosophy. The founder of the school, Hermann Cohen, writes: "Theoretical Idealism has begun to shake the foundations of naturalistic Materialism, and will perhaps soon destroy it. Idealism permeates the new physics. Atomism must give up its place to dynamism. The theory of electricity was destined to cause the greatest revolution in the conception of matter; transforming matter into force, it has contributed to the victory of Idealism." (Introduction to Lange's *History of Materialism,* German edition).

Other shades of Positivism, while appearing to incline towards Materialism, thanks to their common scientific point of departure, take up a neutral attitude in the -traditional controversy which is as old as philosophy itself. They claim to have found a philosophy which is neither Idealism nor Materialism. To retain the distinction of being "scientific" as against speculative, they disown classical Idealism. But their main thesis is that the latest theories of physics have blasted the foundation of the materialist philosophy. The common argument is that the old conception of matter having been replaced by electricity, the principles of an empirical epistemology must also change. Thus, in reality, all the latest schools of "scientific" philosophy are not neutral, neutrality being an impossibility in this controversy; they are anti-materialist; to refute Materialism is the common object.

Positivism was reinforced by the "crisis of physical theories" which resulted from the discovery of the "grand revolutionary radium". The principle of the conservation of energy as well as the doctrine of the indestructibility of mass appeared to be threatened. The position was described as follows by a Positivist philosopher: "Until the end of the nineteenth century, scientists believed in a purely mechanical explanation of nature. They assumed that physics is nothing but a complication of molecular mechanics. They did not differ except is the procedure of reducing the physical to the mechanical. At present,

the picture presented by physico-chemical sciences appears to have completely changed. Extreme disagreements have replaced the former unity, and these disagreements are concerning main and fundamental conceptions. Critical observations have weakened the position of the ontological reality of mechanism. On the basis of this criticism, a philosophic conception of physics, which became almost traditional with philosophy, established itself. Science was nothing but a symbolic formula. Science became a work of art for the utilitarians. This attitude implied the negation of the possibility of science." (Abel Rey, *Contemporary Physical Theories*).

Having described the crisis at a much greater length, Rey remarks that physics seems to have lost all educational value: Science seems to be unable to provide us with true knowledge. The epistemological consequence of this scepticism, therefore, must be: "The cognition of the real must be sought by other means. We must find another way—turn to subjective intuition, to the mystical sense of reality, to the mysterious." (Ibid.)

Of course, the scientists themselves shrunk from joining in this jubilant oration at the supposed debacle of science. The Positivist. professor himself refused to believe that science had come to such an impasse. He saw only a change in the outlook of science. "The ontological validity of the theory is now abandoned, and the phenomenological part stressed instead. The conceptual view deals with pure abstraction. It searches for a purely abstract theory, which eliminates the hypothesis of matter. The notion of energy becomes the fundamental structure of recent physics." (Ibid.)

Energy replaces matter as the substratum of things, and energy is conceived not as a material element, but something different from matter—immaterial, spiritual. Scientific theories do not represent objective realities, but are mere abstractions produced by the human mind as convenient formulas. The laws of nature do not exist by themselves to be discovered by science progressively;

they are invented by human ingenuity. Science invents some laws and ascribes them to nature for explaining its phenomena! That was the position of the different schools of Positivism in the earlier years of the twentieth century. There was nothing new in it. Nothing had been learnt since the days of Plato.

The "crisis in physical theories" was announced, at .the beginning of the twentieth century, by the famous French mathematical physicist Henri Poincare. He perceived the old conception of mass subverted by electrodynamics, the theory of the conservation of energy undermined by the discovery of radium. On the basis of these and other evidence, Poincare concluded that the mechanical conception of the Universe had become untenable; that the Newtonian doctrines, not to mention the Cartesian hypothesis, had lost their force. (Henri Poincare, *The Value of Science).*

Newton, Huygens, Descartes—-all thrown in the scrapheap, old Kepler, Copernicus, Galileo might reasonably apprehend the same inglorious fate overtaking them also. The most brilliant period of human history appeared to be a bad dream. The civilised mankind must now wake up and return to Father Moses, a repentant prodigal. Of course, Poincare himself did not go to the extent of making such inferences from his doubt regarding the validity of the traditional theories of physics. That was done, joyfully and triumphantly, by the protagonists of academic philosophy. Driven from pillar to post, by the advance of science, ever since the fifteenth century, idealist philosophy naturally breathed a sigh of relief when at last science itself appeared to come to its rescue.

Whatever might be the attitude of the philosophers, the scientists had to face the question: Does radioactivity, the electron, energy or whatever it may be, exist outside the mind of man, as the basis of all physical phenomena? As a scientist, Poincare could hardly hazard a negative reply. Yet, he would not answer clearly in the affirmative.

He sought refuge in agnosticism, and fell back on Kant's *a priori* categories. "It is not nature which gives us the idea of space and time, but we give them to nature. Whatever is noi thought, is purest zero." (Ibid.)

The scientist could not directly deny the existence of the external world, but did so in a round-about way: Mind is composed of *a priori* elements, and postulates the phenomenal world. Thus, science is interpreted as supporting the most unscientific dogma—the immaterial producing the material, something corning out of nothing.

The Belgian physicist, Duhem took the logical step from the position of Poincare and taught the "physics of the believer". He sought to reconcile the ever increasing stock of positive knowledge of the mechanistic laws governing the physical Universe, with an essentially teleological Conception—a conception progressively undermined by the physical sciences ever since the days of Galileo, Physics was to repent its materialistic sins, and give up the pretension to know objective truth, which must be sought in other forms of experience—the "religious experience" of the then rising pragmatist philosophy.

Science, however, is stronger than the philosophical prejudices of individual scientists. Objective truths discovered by it shine brilliantly, defying the subjective predilections of its individual votaries, who may doubt its ability to know objective truth. Therefore, Duhem himself had to compromise his "physics of the believer". "Each law of physics is temporary and relative, because it approximates." *(Theories of Physics, their Object and Construction).* This judgment of the value of science does not lead to a spiritualist epistemology. Science is science, precisely because it does not advance the absurd claim to absolute knowledge. The reliability of scientific knowledge consists in its approximateness, which frees it from all limitations. Scientific knowledge is not absolute, but endless. As Duhem himself says: "The physical laws are neither true nor false, but approximate." So, the theories of physics do approximate something. Thus, the

objective reality of the subject-matter of physical research is admitted. The theories do not represent the whole truth, but approximate it, the truth being objectively there, independent of our cognition of it.

According to the concensus of authoritative scientific opinion, "the question at issue is whether the hypotheses-which are at the base of the scientific theories are to be regarded as accurate descriptions of the constitution of the Universe around us, or merely as convenient fictions." (Sir Arthur Rucker at the Congress of Naturalists, Glasgow, 1901). On the authority of great physicists like Kelvin, Maxwell, Helmholtz, Boltzmann, Lamour, Lorentz and others, Rucker categorically rejected "fictionalism" and "symbolism", and declared:

"It may be granted that we have not yet framed a consistent image either of the nature of atoms or of the ether in which they exist. In spite of the tentative nature of some of our theories, in spite of many difficulties, the atomic theory unifies so many facts, simplifies so much that is complicated, that we have a right to insist—at all events, until an equally intelligible rival hypothesis is produced—that the main structure of our theory is true; that atoms are not merely aids to puzzled mathematicians, but physical reality."

That is a summary statement of the "metaphysics of Physical Realism", which the prophet of "spiritual monism", James Ward, so very vehemently condemned on that occasion.

CHAPTER VI

Modern Materialism

IT must be clear from the foregoing chapters that materialism is not what it is vulgarly called, namely, the cult of "eat, drink and be merry". It is the explanation of the world without the assumption of anything supernatural. The efforts made throughout the ages for such an explanation have established a monistic view of the Universe, and revealed the substratum of everything—body, mind, soul—as a material substance, a physical entity,* largely known and progressively knowable: Existence precedes thought; things, ideas; matter, spirit.

Idealistic philosophy reverses the relation. But the .antithesis of philosophical materialism can no longer be stated in religious terms. That would be too absurd, in the age of scientific knowledge and rationalist mode of thought. A philosophical controversy must be conducted on a philosophical plane—with a philosophical terminology. Therefore, in modern times, spiritualism takes the arena against materialism in the deceptive garb of the idealist philosophy, which has been aptly characterised by Feuerbach as "philosophical spiritualism". The issue of the controversy has been reduced to a question of epistemology: the possibility of human mind to know it.

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*The discoveries of Quantum Physics have indeed made the classical notion of matter untenable. But they do not suggest that the old philosophical concept of substance has turned out to be a metaphysical category or it can be altogether discarded. The substratum of the Universe is not matter as traditionally conceived; but it is physical as against mental or spiritual. It is a measurable entity. Therefore, to obviate prejudiced criticism, the philosophy hitherto called Materialism may be renamed Physical Realism.

The materialist point of view that the world exists objectively, by itself, independent and irrespective of its being perceived by human consciousness, dislodges this latter from the place of primacy. This basic principle of Materialism could not be conclusively established except upon the firm foundation of the discoveries of modern science in the eighteenth and nineteenth centuries. On the other hand, the bold speculations and ingenious hypotheses of the rationalist and materialist thinkers ever since the Renaissance encouraged scientific enquiry. The co-operation of materialist thought and experimental science bore magnificent fruits in the eighteenth century.

The great materialist thinkers of the seventeenth century held that our ideas were but abstractions of the images of external objects, received by the senses, and that the external objects were thus unconditionally knowlable. The French Encyclopedists, in the following century, called "those, who, conscious only of their own existence and of a succession of external sensations, do not admit anything else, protagonists of an extravagant system—the off-spring of blindness itself." (Diderot). The Encyclopedists definitely held the view that our senses gave us true representations of outside objects, and sense-perceptions were the only source of ideas. According to them, sensation is a property of organic matter.* That view, yet only a conjecture at that time, was later on corroborated by the empirical investigations of the great Naturalists of the nineteenth century.

In 1758 appeared the great work of Helvetius, *The Mind*. It was the greatest treatise on ethics produced in the eighteenth century, and France led the thought of Europe in that period. The basic principles enunciated therein can be summarised as follow: The difference between man arid other animals is the result of a difference in their external form; the structure of our body is the sole cause of our boasted superiority. This becomes

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*Dialogue of D'Alembert and Diderot.

evident when it is considered that thought is the product of two faculties common to man and other animals, namely, the faculty of receiving impressions from external objects, and the faculty of remembering those impressions. All essential principles of our moral actions are deduced from this position; all notions of duty and virtue must be tested by their relation to senses; in other words, by the gross amount of physical enjoyment to which they give rise. This is the true basis of moral philosophy. The alternative view of moral, to be deceived by conventional expressions, has no other foundation except prejudice, born of ignorance.

Condillac was the greatest metaphysician of the century. He was a materialist. "He found it utterly impossible to escape from those (materialist) tendencies towards the external world that governed his age."* In his famous *Treatise on Sensations*, he asserts that everything we know is the result of sensations, by which he means the effect produced on us by the action of the external world. With some looseness of expression, and perhaps some looseness of thought, Locke had assumed the separate existence of a power of reflection, and believed that, by means of that mysterious power, the product of sensations became available. He used the term 'reflection' so vaguely as to "allow his disciples to make of his doctrine what they pleased."† Moved by the prevailing temper of his time, Condillac would not admit any such distinction between sensation and reflection. He rejected the faculty of reflection as a source of ideas. He held that reflection partly is the channel, through which ideas run from the senses, and that partly, in its origin, it is itself a sensation. He was definitely of the opinion that the faculties of man were solely caused by the operation of his senses. He argues that the judgments we form are ascribed to a divine influence, because it is a convenient

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*Buckle, *History of Civilisation.*
†Whewell, *History of Moral Philosophy.*

mode of reasoning which has arisen from the difficulty of analysing them. By considering how our judgments actually arise we can remove those obscurities. "In man, nature is the beginning of all, to nature we owe the whole of our knowledge. We instruct ourselves according to her lessons. The entire act of reasoning consists in continuing the work which she has appointed us to perform."

The philosophical revolution, brought about by the bold materialistic doctrine of the French Encyclopedists, directly led to a tremendous advance of positive knowledge. The consequence of the growth of materialist thought has been described as follows:

"It was this dangerous, but plausible, principle which, drew the attention of men from the Church to the State; which was seen in Helvetius, the most celebrated of the French moralists, and in Condillac, the most celebrated of the French metaphysicians. It was this same principle which, by increasing the reputation of Nature, induced the ablest thinkers to devote themselves to a study of her laws, and to abandon those other pursuits which had been popular in the preceding age. In consequence of this, movement, such wonderful additions were made to every branch of physical science that more new truths concerning the external world were discovered in France during the latter half of the eighteenth century than during all the previous periods together."*

Epoch-making discoveries regarding the nature of heat, light, electricity and magnetism were made by Provost, Dulong, Fourier, D'Alibard, Coulomb, Frensel and a whole host of other lesser lights—all in the latter part of the eighteenth century. Modern chemistry was also created by French materialism in that period of great intellectual outburst. The father of this science, Lavoisier, lived in that period, together with other famous, chemists like Fourcroy, de Morveau, Verdeil, etc. That was the age of great Buffon and Cuvier—founders of

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*Buckle, *History of Civilisation.*

geology; zoology, anatomy, physiology and botany also icceived great impetus. Cuvier and Bichat are the fathers of biology. Cabanis founded modern physiology and psychology. Appreciating the achievements of those great scientists, all inspired by materialist thought, Buckle writes:

"By this union of geology and anatomy, there was first introduced into the study of nature a clear conception of the magnificent doctrine of universal change; while at the same time, there grew up by its side a conception, equally steady, of the regularity with which the changes are accomplished, and of the undeviating laws by which they are governed. Similar ideas have no doubt been held in preceding ages; but the great Frenchmen of the eighteenth century were the first to apply them to the entire structure of the globe, and who thus prepared the way for that still higher view to which in our time the most advanced thinkers are rapidly rising. For it is now beginning to be understood that, since every addition to knowledge, affords fresh proof of the regularity with which all the changes of nature are conducted, we are bound to believe that the same regularity existed long before our little planet assumed its present form, and long before man trod the surface of the earth."*

In the nineteenth century, science, with its all-conquering methods, steadily advanced farther, drawing more and more subjects under its rule, yielding answers to more and more problems, while theology and metaphysics remained impotent to furnish convincing answers and were found constantly to be in flagrant contradiction with the certainties of experience. Of the three modes of explaining phenomena—theological, metaphysical and scientific—the latter gained strength daily. Previously, all men had accepted the theological explanation of the world and society. But in proportion as knowledge advanced, that explanation was discovered to be incessantly in

*Buckle, *History of Civilisation.*

contradiction with experience. As knowledge advanced, men withdrew more and more phenomena from the protection of supernatural agencies, and placed them under the jurisdiction of the mechanistic laws of nature; gods and supernatural entities were deposed for good.

In 1809, Lorenz Oken wrote his *Manual of the Philosophy of Nature*, in which he advanced the theory that the phenomenon of life in all organisms originates in a common chemical substance. The theory of evolution by biological use and disuse had been suggested by Lamarck even before that. In 1815 was published Lamarck's *Natural History* which first introduced the term 'biology'. Lamarck wrote: "Life is purely a physical phenomenon. All the phenomena of life depend on mechanical, physical and chemical causes which are inherent in the nature of matter itself. The simplest animal and the simplest plants, which stand at the lowest point in the scale of organisation, have originated and still originate by spontaneous generation. All animate natural bodies or organisms are subject to the same laws as inanimate natural bodies. The ideas and actions of the understanding are motional phenomena of the central nervous system."

The investigation initiated by the bold hypotheses of Lamarck and Oken led to positively revolutionary discoveries. Darwin immensely improved the Lamarckian theory of descent with the doctrine of natural selection. The clear and unavoidable implications of Darwinism left absolutely no room for a Creator, and consequently for the traditional religious prejudices, nor for the speculation about a spiritual essence of the Universe. Darwinism was the object of a bitter attack by the Church theologists, pious philosophers and even by many scientists of the time. Darwin was damned as the "greatest atheist". He himself was staggered by the revolutionary implications of his great scientific discoveries. But once ideas are created, they move with their own momentum. In spite of Darwin's ambiguous attitude regarding the philosophical

implications of his scientific discoveries, they asserted themselves through the work of his disciples. Haecltel, for example, found sufficient ground for the assumption that there is "in the foundation-stones of the structure of matter itself: a property similar to sensation." Other eminent biologists, pursuing their own line of research, arrived at similar conclusions, in the light of which the principles of materialist epistemology came out of the domains of hypothetical conjecture, to be established as empirically verified philosophical concepts.

Scientific knowledge about the history of the Universe shows that organic beings did not exist on this earth from eternity. They could not, owing to the uninhabitable state of this planet as well as the other members of the solar system. Only at a certain stage of the physical growth of the earth, organisms came into being. The theories of descent and natural selection can be traced back to that remote point in the history of our globe. Then arises the question: How did the first organism grow? The German scientist Haeckel was the first to raise the question boldly, and answer it with the hypothesis of spontanesus generation. "This is the point at which most naturalists, even at the present day, are inclined to give up the attempt at natural explanation, and take refuge in the miracle of an inconceivable creation. In doing so, they quit the domain of scientific knowledge, and renounce all further insight into the eternal laws which have determined nature's history. But before despondingly taking such a step, and before we despair of the possibility of any knowledge of this important process, we may at least make an attempt to understand it."*

Haeckel himself held the key to the problem which he so modestly approached. It was in his discovery of the very simplest form of organism which he described as "organisms without organs". He discovered them floating on the sea-water. "They are very small living corpuscles

*Ernst Haeckel, *The History of Creation.*

which strictly speaking do not deserve the name of organism, not compound of any organs at all, but consist entirely of shapeless, simple, homogeneous matter. The body of one of these is nothing more than a shapeless, mobile, little lump of mucus or slime, consisting of an albuminous combination of carbon. Simpler or more imperfect organisms we cannot possibly conceive."*

The English scientist Thomas Huxley also discovered a similar form of lowest organism in the depths of the ocean. His hypothesis having thus been verified by independent discovery, Haeckel wrote: "On account of the perfect homogeneity of the albuminous substance of their bodies, on account of their utter want of heterogeneous particles, these are more closely connected with anorgana than with organism, and evidently form the transition between the inorganic and the organic worlds of bodies, as is necessitated by the hypothesis of spontaneous generation."

The discovery of these simplest and lowest organisms threw light upon the secrets of life. No room was left for the persistent tradition or superstition about the miraculous origin of life. The hypothesis of spontaneous generation was verified. In the time of Lamarck and later on, the probability of the hypothesis was doubted, because the lowest known forms of organism were of relatively composite nature. But the primitive forms discovered by Haeckel and Huxley were not composite organisms, not aggregates of several organs; they "consist solely of a single chemical combination, and yet grow, nourish and propagate themselves." (Haeckel). So, a simple compound of carbon was found to be the seed of original life, —the totality of the molecular motion of matter, which, in higher forms of organisms, is endowed with the dignity of the mysterious, super-natural, "vital force" (soul). Since then, organic chemistry discovered that the most elementary substratum, which brings into evidence the play of the

*Ernst Haeckel, *General Morphology*.

mysterious vital force, was a combination of carbon with oxygen, hydrogen and nitrogen. This "material" playground of the super-natural vital force is an albuminous substance. Originally, all organisms are simple lumps of such albuminous formations, called protoplasm.

There is no difference between the organic and inorganic matter. All living bodies are formed out of such chemical elements as carbon, oxygen, hydrogen, nitrogen, sulphur, potassium, sodium etc. No such elements have been found in vegetable and animal bodies as are absent in the inorganic substances. When a certain combination of a number of chemical elements produces the phenomenon of life, it enters into the organic domain. The primary manifestation of this phenomenon is the process of nutrition and multiplication.

By boldly establishing the Lamarckian hypothesis of spontaneous generation, Haeckel completed Darwinism as a pillar of the modern materialist philosophy. He wrote: "A conception of an immaterial force, which at first creates matter, is an article of faith which has nothing whatsoever to do with human science. Where faith commences, science ends. These two arts of human mind must strictly be kept apart from each other. Faith has its origin in the poetic imagination; knowledge, on the other hand, originates in the reason and intelligence of man. Science has to pluck the blessed fruits from the tree of knowledge, unconcerned whether these conquests trench upon the poetical imaginings of faith or not." Darwinism, elaborated by Haeckel and subsequently by a number of other scientists, provided an unshakable foundation of knowledge to materialist philosophy.

Yet, whenever and wherever science failed to give fully satisfactory explanations of all the phenomena, man continued to place reliance upon supernatural and spiritual agencies, supposing them to be beyond the reach of science, and maintaining in consequence that even the defective and imperfect scientific knowledge, which can never attain the absolute truth, was possible only owing

to the "divine spark" in man. The inscrutable will and invisible hand of the All-Mighty were triumphantly

detected wherever the mechanistic laws of nature were not yet discovered, or the operation of them appeared to be suspended by the intervention of unforeseen factors. Ignorance became the shrine of God, the decisive argument in favour of religion. Hence, we come across minds completely dominated by the scientific outlook in astronomical, physical and chemical questions, nevertheless stubbornly refusing to apply the same mechanistic principles to the investigation of the organic world, particularly to man. Biology and psychology still remain confused by theological and metaphysical prejudices, although the nineteenth century is crowded with positively revolutionary discoveries of natural science in the organic as well as in the inorganic world. The application of mechanistic laws and the inductive method of investigation particularly, to history, politics, law, economics and ethics, was deprecated even by "scientific men", as dogmatic, perverse, disruptive, reprehensible and unscientific.

It is, however, no paradox that so many scientifically minded men, even scientists, should linger under the waning influence of the religious and metaphysical view of life. The cause of the apparent paradox is to be found in the specialisation of scientific study. It was necessary for particular groups of men to devote themselves wholely to particular branches of science—to small, limited fields of investigation which were but minute fractions of the vast domain of nature. The result was that the sole occupation with particular groups of phenomena made the average man of science lose sight of the comprehensive nature of science as a whole. They failed to see the forest for the trees, as it were. The very creditable and profusely productive zeal of practice in detail eclipsed the broad vision of theory. In short, specialised men of science were not able to draw broad philosophical conclusions from their own discoveries and knowledge. The

co-ordination of the vast knowledge acquired by the diverse branches of science was to be done by a new philosophy materialism.

Bishop Berkeley began his crusade against materialism with the following declaration: "The doctrine of matter or corporeal substance is the main pillar and support of Scepticism, upon the same foundation have been raised all the impious schemes of atheism and irreligion. How great a friend 'material substance' has been to the atheists in all ages, is needless to relate. Matter being once expelled out of nature, drags with it so many sceptical and impious notions, such an incredible amount and number of disputes and puzzling questions, which have been thorns in the side of divines as well as philosophers." The indignant divine concludes his passionate denunciation of materialism with the pious conviction that "all friends of knowledge, peace and religion would surely wish that my arguments have completely demolished the enemy."

But that was not to be. Religion was defeated by knowledge. Even in the plausible form of "scientific" idealism, it could not hold its own against the quint-essence of human knowledge—philosophical materialism. The discoveries in the field of geology, palaeontology, astronomy, chemistry, physics, biology, since the days of Berkeley, made it a matter of common knowledge that the physical existence of the Universe preceded the appearance of many by ages of incalculable duration. The Universe is composed of a countless multitude of stars, of which the sun is one, and the earth is only a satellite of the sun. A little contemplation of these facts makes it evident how insignificant a factor human consciousness is. The comparative insignificance of human consciousness, however, is only quantitative. Qualitatively, its importance is immense. That is demonstrated by the very ability to acquire the knowledge which lays bare its quantitative insignificance in comparison with the vast background of the physical being. Having grown out of

matter, the spirit dominates matter. The epic of the struggle for this domination is the history of man. The consciousness of the comparative, qualitative, insignificance of the spirit—the recognition of the fact of its subordination to matter—generally does not, in the least, underestimate its unlimited potentiality, cannot belittle the glory of its achievements in the realm of positive knowledge. On the contrary, this recognition sets human spirit really free by liberating it from the fetters of teleology. For the first time, human spirit (call it soul, if you please) stands on its own legs, shines not as the reflection of an unseen light, but in the native effulgence of its own being. When man feels the endless potentialities of his own mind, the genesis of which is no metaphysical mystery, it is no longer necessary for him to believe in any supernatural force governing his destiny or guiding his footsteps.

The knowledge that life occupies such an insignificant place in the physical vastness of the Universe, reveals the absurdity of the ideological conception of religion, that everything happens according to a divine purpose. Whatever religious view you may take, be it the Mosaic doctrine of creation, or the pantheistic idea of emanation (Vedanta), man occupies the centre of the stage. Either God created the world for the benefit of man, or the purpose of the whole scheme of the Universe is to provide a stage-setting for the whimsical peregrinations of the soul. Both these doctrines, together with the numerous variations of each, are shattered by the discovery that life, in any form, occupies an infinitesimal small place in the order of the physical Universe, and is scarcely a minute old compared to the incalculable age of its material background.

God does not appear to be the omnipotent and omniscient master-builder as believed by religious men. If, in order to create the tiny speck of dirt inhabited by crawling bits of carbo-hydrates, he had to waste the immeasurable mass of matter constituting the Universe,

and spend the incalculable trillions of years in that superb feat of wastefulness, he has certainly not as much ability or power or intelligence as any mortal architect or structural engineer. No intelligent man can accept such a God as the arbitrary mentor of his destiny. It is simply absurd. Had the Universe been created by an omnipotent and omniscient God for the benefit of man, the latter would have been given a higher place in it. As regards the pantheistic religious view (Vedantism), it is equally absurd. How could the Universe be the playground of the soul, since it existed through countless ages without any trace of life? In the absence of life, in any form, there can be no consciousness which is detected inorganic matter only in a comparatively high level of evolution. In the absence of consciousness, there cannot be any question of an intelligent purpose. The physical Universe is, indeed, governed by definite laws, but, being in an entirely lifeless state, cannot be the vehicle of an intelligent purpose. Its laws are purely mechanistic, being but variations of motion inseparable from the existence of matter. The natural history of the earth again proves conclusively that intelligence is a comparatively new phenomenon of living matter, which is nothing more mysterious than inanimate matter subjected to certain physico-chemical processes. Throughout the entire scheme of the Universe, there is to be found neither the hand of the all-mighty God nor any intelligent purpose.

Berkeley was perfectly correct in attacking materialist epistemology as the repugnant source of atheism and irreligion. The recognition of the objective reality of things, reduceable to a common material denominator, sounds the death-knell of religion, faith, metaphysics and mysticism. If the world of individual perception is independent of, and prior to, the individual ego (soul), then, the conclusion is irresistible that the world of universal perception is equally independent of, and prior to, the imaginary Universal Ego (God).

Soul and God are inseparable twins. They must stand or fall together. This materialistic deduction of pure thought has now been empirically corroborated. Materialism has become more than a plausible hypothesis; it is a verified scientific theory.

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A pupil of Hegel, Feuerbach came to the conclusion that the Absolute Idealism of his teacher was the highest culmination of classical philosophy, and held that, for the future, philosophy must strike out a new path. He stated the cardinal principles of the "New Philosophy" in the following memorable words: "Thought is conditioned by existence, not existence by thought. Being is self-determined, has its foundation in itself." The traditionally believed relation between soul and body, mind and matter, is here reversed. Religious and metaphysical categories, such as God, Soul, First Principle, Final Cause, did not create man, but they are the creations of roan's imagination. This thesis was brilliantly elaborated in Feuerbach's great work, *The Essence of Christianity*. It is a master-piece of religious criticism, applicable theoretically to all religions.

The following is a summary of Feuerbach's New Philosophy: "The material world is accessible to our senses. The world to which we belong is the only real world; our consciousness and our thought are engendered /by a material organ (brain)—a part of the body. Matter is not created by spirit; spirit itself is but the highest product of matter." Feuerbach made full use of the Hegelian criticism of the concept of the "thing-in-itself" —the last refuge of metaphysics and therefore of religion. Hegel said: "If you know all the qualities of a thing, you know the thing-in-itself; nothing remains but the fact that the said thing exists outside us; and when your senses have taught you that fact, you have grasped the last remnant of the thing-in-itself." These words of the greatest and most consistent modern idealist philo-

sopher forecast many discoveries of the natural sciences and were pregnant with the germs of the materialist epistemology which were to fructify so magnificently under the care of his pupils—Feuerbach, Marx and Engels.

In the place of the time-honoured religious, theological and metaphysical dogmas, Feuerbach placed man —of flesh and blood—in the centre of things, and proreeded to interpret everything, including those dogmas, by that standard. That was an all-shattering method. Everything appeared in a new light. The clay-feet of old gods were exposed. The human essence of divine conceptions was laid bare. Theological mysteries were revealed as the result of anthropomorphic preoccupations. The carnal core of religion was'discovered. Faith was found to be the expression of egoism. In short, Feuerbach's materialist criticism pulled down the religio-theo-meta physical super-structure of civilisation, not only Western, but as a whole. His criticism was not historical, but theoretical, equally applicable to any particular subject.

But Feuerbach's philosophy was not without a flaw. It was in its point of departure, in his failure to see things in a process. The being of man determines his consciousness, and being is governed by its own laws. What are those laws? How do they operate? Feuerbach omitted to answer these fundamental questions. Man explained everything, but the man himself remained unexplained, and appeared as an absolute category.

Marx and Engels took up the thread at this critical point. They replaced Feuerbach's abstract conception of man by the dynamic conception of a social being—a factor involved in a process of continuous change. The basic principles of materialism were corrected and amplified by them, and re-stated in the following unambiguous form: "It is not the consciousness of men which determines existence; but on the contrary, it is their social

existence which determines their consciousness."* The consciousness of man is, indeed, determined by his physical existence; but the evolution of human thought—the spiritual progress of man—is influenced by social conditions which, in their turn, change the conditions of the physical being of man. The view that man is an absolute standard irresistibly leads to the conclusion that he must think similarly in all ages, under all circumstances.

All possible ambiguity about the "being" of man, which determines his consciousness, is definitely removed by the following view of man's relation to nature: "By acting on nature, outside himself, and transforming it, man simultaneously changes his own nature-"† (Karl Marx). The physical being of man is not a constant category. It implies an inseparable, eternal, relation with nature, man himself being a part of nature; and this relation—the most vital fact of man's being—is not a relation of passive contemplation, but of action which, therefore, is the essence of his being and as such determines his consciousness. The struggle for freedom from the ruthlessness of nature, as against the struggle for existence through adaptation, separates man from the lower animals. That struggle, in its turn, is undertaken by man not singly, but collectively. From his very birth (anthropologically), man is a social being. Therefore, the laws governing man's being are to be sought in his social relations, that is, in the terms and conditions on which human beings live together.

Aided by the discoveries of the natural sciences as

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*Marx went too far. The proposition that consciousness is determined by being does not necessarily lead to economic determinism. The economic interpretation of history does not logically follow from the materialist philosophy. On the contrary, the one contradicts the other. Marxian economic determinism having essentially a teleological implication.

†*Theses on Feuerbach.*

well as by the Hegelian dialectic* method of reasoning, Marx made an exhaustive investigation in the field of social history, and established the fact that the consciousness of man, after all, is determined "by the way he makes his living". Since man's modes of making his living (and the modes of living itself) change from time to time, the forms of his thought and the modes of expressing it change correspondingly.

"The great fundamental question of all philosophies," as Engels stated the proposition, "is connected with the relation between thought and existence, between spirit and nature." His answer to this fundamental question of philosophy is very definite: "Materialism regards nature as primary, and spirit as secondary." Having clearly and concisely stated the basic principle of materialism, Engels raises questions concerning the theory of cognition: "The question of the relationship of thinking and being has another side. In what relation do our thoughts, with regard to the world surrounding us, stand to the world itself? Is our thought in a position to recognise the real world? Can we, in our ideas

-and notions of the real world, produce a correct reflection of the reality?" † The answer to these fundamental

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*While modern scientific knowledge reinforced the empirical foundation of the materialist philosophy, by associating it with Hegelian dialectics, Marx seriously weakened it. "The basic error in the philosophical thinking of the founders of dialectical Materialism was to confound logic with ontology. In the Marxist system, dialectic is the fundamental law of thought, and it is also a description of the process of nature, biological as well as inanimate. The subject matter of a branch of metaphysical enquiry is confounded with the instrument for conducting that enquiry. In Marxist philosophy, logic as well as ontology bear the identical label of dialectic. Confusion, therefore, is inevitable." (Editorial Notes, *The Marxian Way,* Vol. II, No. 4).

† Engels, *Feuerbach: The Outcome of Classical Philosophy.*

questions of epistemology differentiates the two contending systems of philosophy, namely, materialism and idealism, the latter being, as characterised by Feuerbach, "philosophical spiritualism".

The idealist doctrine that a mysterious gulf separates, for ever, the phenomenal world from the "world in itself" is nothing but the familiar religio-theological juxta-posilion of spirit and matter, soul and body, God and nature, as thesis and antithesis, as freedom and bondage, as reality and illusion. "It is an abyss", to quote Feuerbach once again, "created by the priests and adopted by the professors of philosophy." Materialism does not recognise this unbridgeable gulf, and experimental science has demonstrated beyond a shadow of doubt that no such gulf exists except in the fantasy of "philosophical spiritualism".

Pantheistic mysticism or mystic pantheism, the outstanding feature of Indian philosophy, asserts that one tan cross the Rubicon and taste the bliss of real knowledge on the other side; but the assertion loses all force, except that of idle dogmatism, when it is associated with the admission that returning from that land of dream, none can describe what he has seen there: "Religious experience" is not communicable. Again the same old story: You must fall back upon faith, and believe in the "seer". His inexplicable dreams, fever-fantasies, trances, which may not seldom be sheer imposture, should be accepted as infallible, inspired wisdom—an effulgent ray of the divine light—as against the demonstrable knowledge of experimental science. This is denial of objective truth, the cognisability of which is the cardinal principle of materialism. To make of truth a purely subjective category, existing only in the dreams and fantasies of individuals, is to rule out truth as a reality. And that monstrosity is committed by the opponents of materialism.

On the basis of the successive stages of the development of modern materialistic epistemology, a

basis subsequently rendered unshakable by the discoveries of natural sciences, Marx and Engels built up the complete and comprehensive structure of historical materialism. The fundamental epistemological principle of Marxian materialism are the following: "1. Things exist independently of our consciousness, independently of our sensations; 2. There is absolutely no difference between a phenomenon and the thing-in-itself, and there can be none. The difference is only between what is already known and what is yet unknown; 3. In the theory of knowledge, as in other branches of science, we must think dialectically, that is, we must not regard our knowledge as ready-made and unchangeable, but must determine how from ignorance knowledge is gradually built up, and how incomplete and inexact knowledge becomes more complete and more exact."*

The means to knowledge is action, not passive contemplation. As an object of passive contemplation, the nature would always remain an unfathomable mystery. Whether the senses supply us with true pictures of outside objects, can be ascertained only by going out of ourselves, by reaching out to the objects and comparing them with our perceptions of them. The taste of the pudding is in eating. The "thing-in-itself" ceases to be unknowable, becomes fully and positively known, as soon as we make it a thing-for-us. Nor is this approach to nature a new departure. Man's relation with nature has been from the very beginning not of passive contemplation, but of action. When the primitive man gathered fruit from the tree or caught fish from the river, and ate them to satisfy his hunger, he acquired definite knowledge about the things called fruit and fish. No amount of philosophical hair-splitting could ever persuade him to believe that the "fruit-in-itself" or the "fish-in-itself" might be something different from the images they made on his retina. The act of eating, and the result of that act—satisfaction of hunger—were fully convincing. Let a Berkeley or a

*Lenin, *Materialism and Empiric-Criticism.*

Sankaracharya try to teach the man, consciously standing in the relation of activity to nature, that the fruit he eats is an illusion, that the fish is a fantasy; he would simply laugh the wise man out of court.

Man's relation to nature has always remained one of action, but the religion, theology, religious philosophy and metaphysics made him forget the real essence of his being. Just as, by virtue of his ever-increasing activity, man's knowledge of nature increased correspondingly, he was taught the blessed doctrine that ideas were not the abstractions of his activities; they existed by themselves^ inspiring his activities. Practice, the very basis of life,, was totally divorced from the theory of life. The theory of life was not to be derived from, and verified by, the practice of life. The theory of life was a matter of divine inspiration—a mysterious, but imperative voice from "the-other side" where the mind of man cannot penetrate. The theory of life, which should dictate the practice of life, was thus made entirely independent of the latter. Sensual knowledge, that is, the real knowledge acquired by man in course of his action upon nature, was branded as an illusion, at the best, an inferior sort of knowledge which is of no value for solving the "profound" meta-physical problems of life.

The root-cause of this absurd confusion, as a matter of fact, falsification, in the realm of epistemology, was. unearthed by Marx and Engels. "From that moment, (when the theory of life is separated from the practice of life, through the division of labour into spiritual and material), consciousness may in reality imagine that it is-something other than the consciousness of existing things. From the moment that consciousness begins really to-imagine something, without imagining something real, from that time onward it finds itself in a position to-emancipate itself from the world, and proceed to the formation of phantoms as basic elements of knowledge— absolute categories .of truth, eternal—and immutable."*

*Marx, *Theses on Feuerbach.*

The phenomenal progress of the natural sciences in the nineteenth century exposed the utter absurdity of the "spiritualist" doctrine of epistemology which had condemned man to eternal ignorance, and proclaimed the real world an illusion. Neither science nor philosophical materialism claims absolute knowledge. That is the stock-in-trade of the religionists, modern as well as ancient, Eastern as well as Western. Only by rejecting the dogma -of absolute knowledge, can we appreciate knowledge in its native spiritual dignity and sublimeness. Only then does human spirit appear in the perspective of infinity. Science does not put forward the stupid claim that it knows everything. That would be tantamount to the hymn at the funeral of humanity. For, if everything is known, there will be nothing more to do, and life will automatically come to an end. What, science has proved, is that there is nothing unknowable; and materialist philosophy adds the corollary that, whatever is within the ken of human consciousness is material, because, something immaterial (spiritual, in the traditional sense) can never be cognisable to human mind, itself a product of matter in a particular state of organisation. Science visualises, *in reality,* what religion and metaphysics have only idly imagined, namely, the omnipotence and omniscience of human soul—not in space, but in time. Omnipotence and omniscience, to be real, must be seen in a process—in terms of time. The materialist theory of knowledge endows human spirit even with the attribute of immortality; the consciousness of the man of a given epoch is the embodiment of knowledge accumulated in the past, and will continue to live in the endless progress of knowledge in the future. The materialist theory of knowledge can be summarised as follows:

Sense-perceptions, human experience, gained not in passive contemplation, but in active functioning of the human organism, and having for their source the material world existing objectively outside our consciousness, independent of it, is the point of departure of all knowledge.

There is no end to the process of acquiring such knowledge; the more we know, there will be further to know; and since every step forward in the process of enlightenment corrects, adds to, amplifies our previous stock of knowledge, there is no such thing as perfect knowledge or absolute truth.*

The natural philosophers of the eighteenth and nineteenth centuries, though hindered by their poetical imagination from taking a strictly scientific attitude, nevertheless stood on the ground of materialism inasmuch as most of them held the activist theory of life. Goethe, for example, wrote: "I should not know what to do with eternal beatitude, unless it would offer me new tasks and difficulties to be conquered. But they will be provided. We need only look at the planets and the sun; there we shall also have nuts to crack."† Lessing also said the same thing in different words: "If the Almighty offered me the choice between truth and the search for the truth, I would unhesitatingly take the latter." Here we have the spirit of philosophic materialism breathed by poetic geniuses whose works will ever remain among the most beautiful specimens of the creation of human spirit.

The world of pure thought, that is, the world of spirit, is not separated from the sensual world, from the world of phenomena, by an unscalable wall. Pure thought is not of transcendental origin. There is no "other side" in contrast to "this side"; there is no world of spirit beyond the world of matter; no world of reality as against the world of illusion; no world of self-effulgent truth, distinct from the world of confusing half-truths; no world of sublime beatitude, counter-posed to the world of baffling and bewitching twilight of sense-perceptions. Pure thought, that is, spiritual activity of man, is the abstraction of activities constituting the basis of his material

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*Objective truth is not absolute; it is modified by increase in the knowledge of reality.

† *Letters.*

being. Faith, religion, mysticism—all these old prejudices are the progeny of ignorance.

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The declaration of pseudo-scientific scepticism, agnosticism and modern idealistic philosophy, that we do not and cannot know more of the external world than its reflection upon our senses, that objective truth is beyond our reach, leaves the way open for the old prejudices to creep into cramp human spirit. Since "scientific" thinkers themselves admit the inability of sensual knowledge to include the whole truth of the universal being, who is there to dispute the claims of the advocates of revelation, inspiration and religious experience?

This question naturally arises if we take the oracle of the pseudo-scientific mystics as decisive. But the natural sciences do not allow us to take their idealist wisdom for granted. Objective truth, that is, the truth about the Universe as it exists by itself, outside of our sense-perception, is no longer an illusive category. The natural sciences have proved that it is knowable, the evidence being that we know more and more every day. Once it is established theoretically, not on the basis of speculation, but of human practice, that for explaining the Universe, there is no necessity for assuming a Noumenon behind phenomena, that the Universe itself contains all the data for its explanation, offers us the key to the endless knowledge of its being, the dealers in divine wisdom, spiritual inspiration and occult knowledge find it difficult to vend their glittering trinkets. That has been done by modern materialism which is the outcome of scientific thought ever since the days of Democritus corroborated by the positive knowledge of same.

CHAPTER VII

The Crisis of Materialism

EVER since Henri Poincare, towards the end of the last century., dramatically declared that physical theories were overtaken by a crisis, mathematical physics provided hope to idealist philosophy. The differential equations of Hertz and Maxwell, when first formulated as a convenient method of stating physical conceptions, were eagerly welcomed as a "conclusive refutation" of materialism. It was held that the system of equation dispenses with the concept of matter; there was no objective reality, physics only dealt with symbols. Of course, mathematicians are sometimes carried away by their system of calculation, forgetting in their theoretical abstraction that something is being calculated. Two apples added to another two make four apples. The arithmetical axiom 2+2 = 4 is taught and learnt as a pure theoretical concept. But always the numbers stand for something concrete. If any schoolboy would take it into his head to dispute the correctness of the axiom, no mathematical genius will ever be able to convey conviction to the silly child theoretically. The mathematician, should he care to defend the prestige of his axiom, must get down from the altitude of his abstraction, and busy himself with the vulgar concrete of so and so many apples or something else equally concrete. Exactly similar is the case with the more abstract differential equations. They are not mere symbols, but are the convenient method of dealing with objective realities.

Nevertheless, it is a fact that the danger of idealist deviation is inherent in the pure abstractions of higher mathematics; but the danger is overcome by the experimental branch of physics. In the case of Hertz and Maxwell, the balance was kept by the great German physicist

Boltzmann. He combatted the attempt to utilise mathematical physics as a support for idealist philosophy. Replying to the "Symbolists" and "Phenomenologists" he said: "Those who propose to eliminate atomism by means of differential equations, cannot see the wood for the trees. If we do not wish to entertain any illusion-about the significance of the differential equations, there can be no doubt that this picture of the world (presented by the equations) must necessarily be in essence atomic; that is, it will be a summary description that, in accordance with certain rules, larger quantities of objects situated in a three-dimensioned space will be conceived as-changing in time."

Hertz and Maxwell themselves also were far from the danger of constructing an idealist philosophy on the basis, of their equations. They declared that the equations, that is, purely mathematical abstractions, did not preclude the construction of a mechanical theory of electricity out of real elements.

In short, the whole confusion arises from the idealistic prejudice of regarding mathematics as an independent science which does nothing more than express abstract concepts in figures. In reality, mathematics is an instrument of experimental science—a sort of short-hand of science. The mistake made by a short-hand reporter does not portary a mental defect of the speaker.

Matter survived the "crisis" already a generation ago. None would to-day dispute the reality of the atom, now that it is actually being hammered in the laboratory to give out vast stores of energy to be used for practical purposes. To-day the objective reality portrayed by the concept of matter is too well recognised to be shaken by any pseudo-mathematical jugglery. What, after all, did the famous "crisis" of physical theories really mean? In the last analysis, it involved the *conception* of matter; it did not affect the existence of matter as such. The controversy centred upon the nature of matter, the existence of wkich itself, in some form or other, was not contested by

any scientist of authority. The "crisis" simply exposed the inadequacy of the old atomist theory. It simply showed that the atom was not the ultimate, irreducible, state of matter. The substance of the "crisis" was that it appeared to reduce matter from mass to energy or radiation. There was nothing particularly new in that changed conception of the nature of matter, which could turn over all the traditional theories of physics and mechanics.* From the days of Democritus, materialists always visualised the substratum of the Universe as matter-in-motion. They never conceived matter and motion as two distinct entities. Motion is a property of matter. Years before the "crisis", Engels conceived motion as a "form of material being". Therefore, the new physical theories do not amount to anything but a greater, closer, more concrete, knowledge of matter.

Another result of the "crisis"—a corollary to the supposed disappearance of matter—was considered by philosophers to be the destruction of the old theory of mechanics. In the absence of mass, all the traditional laws of mechanics become untenable. Physics appeared to abolish the mechanistic conception of the Universe, and provide proof for the re-establishment of teleology.

That the crisis did not spell disaster for science and materialist philosophy is testified by the fact that the traditional theories of physics still counted among their supporters such great names as Kirchhof, Hertz, Maxwell, Boltzmann, Helmholtz, Kelvin, Lorentz, Larmor, Lange-vin and many others. Even the "Positivists" admitted that the "crisis", after all, was but a milestone on the load of the development of physical theories. Assuming that the then hypothetical laws of electro-magnetism would lead to a modification of the traditional law of

*For a statement of the philosophical implications of the latest theories of physical and biological sciences, and also of a scientific theory of knowledge, see *Science and Philosophy* by M. N. Roy; also *The Marxian Way*, Vol. I and II.

mechanics, one of them raises the question: "Would it signify the abandonment of mechanism?" His answer is clear enough: "By no means. The pure mechanistic tradition would continue to persevere, and mechanism would follow its normal course of development."* The Positivist historian of the "crisis" then continues: "Matter is reduced to electrical particles, the ultimate elements of the atom. Motion, as displacement in space, remains a uniquely typical element in physical theory. And finally, from the viewpoint of the general spirit of the science of physics—its methods, its theories and their relation to experience—physics remains absolutely identical with the view of mechanism which was ushered in with the Renaissance."

Turning to the co-related proposition of motion without matter, equally decisive and more authoritative opinions are found against it. "The real reason why physics at present prefers to express itself in terms of energy is that in this way it best avoids talking about things it knows very little of. It is true that we are now convinced that ponderable matter consists of atoms; and we have definite notions of the magnitude of these atoms, and of their motion in certain cases. But the form of the atoms, their motions in most cases—all these are entirely hidden from us. So that, although our conception of atoms is an important and interesting object of further investigation, it is in no wise specially fit to serve as a known and secure foundation for mathematical theories."† It is dear from this statement that Hertz's doubt was not about ponderable matter itself, but about its construction. Such doubt is in the nature of science. Without it, science would cease to be science, and degenerate into a body of dead dogmas. The spirit of enquiry is the lever of scientific progress which adds constantly to the knowledge of man. Hertz's doubt about the construction of

*A. Rey, *Contemporary Physical Theories.*
† Heinrich Hertz, *Works.*

ponderable matter only led towards the conception of "motion as a form of matter". One of the founders of dialectic materialism had the conception philosophically years before it found an empirical basis. Then, physicists prefer to talk in the terms of energy, not as the substitute for ponderable matter; but simply because of its being more accurately known, one could speak in terms of energy with greater precision. At that moment, the knowledge of the motion happened to be more precise than that of the things moving. There was absolutely no doubt that there was something moving; otherwise, there would be no motion.

W. Waubel, the author of standard works on physical chemistry, proves that the latest discoveries (radium, electron etc.) helped to form a more concrete idea about the nature of atoms and molecules, and the forces acting between and within them. He decisively rejects the proposition of motion without matter. He holds that motion presupposes the existence of matter. The very definition of motion, as displacement in space, implies the existence of something moving. If the mass is merged in motion, then motion becomes a form of matter. In his book on electricity, Waubel sets forth the view that electrical phenomena are produced by the motion and interaction of electrons which are particles of atoms. This view was indisputably borne out by the latest discoveries about the internal state of atoms. For example, in the beginning of 1932, Professor Chadwick of Cambridge discovered what has been named the "neutron". It is a close combination of proton and electron, so tightly bound together that it has no electric charge. This discovery definitely proves the fact that electricity is a form of matter. It is not pure motion, but mass-in-motion.

All scientists, without any metaphysical preoccupation, find in the electric theory of matter only another step forward towards the knowledge of the unitary basis of the Universe. "Every purely kinetic conception of nature means nothing but that there are a certain number

of moving objects: these may be called electrons or something else."* The universal phenomena cannot be conceived kinetically, that is, in the terms of energy, without the presupposition of a mass, however fine that might be. Electrical particles, particles of energy, are material entities. The concept of electron does not do away with, mass. It represents a closer knowledge of the construction and movement of matter.

The French physicist Cornu wrote: "The more we conceive the phenomena of nature, the more developed and precise becomes the brave Cartesian view of the world—mechanism: In the physical world, there is nothing save matter and motion. The problem of the unity of the various physical forces has again been put into the background alter the great discoveries made at the end of the nineteenth century. The attention of our modern leaders of science—Faraday, Maxwell, Hertz—was chiefly concerned with defining nature more accurately through new hypotheses about the properties of ponderable matter which is the vehicle of the world-energy." A return to the Cartesian view of world-mechanism does not mean the destruction of the traditional doctrines of physics by its new theories. A decade later, the famous English chemist William Ramsay wrote: "One so-called element can no longer be regarded as ultimate matter; but it is itself undergoing change into a simpler form of matter. Now it is almost certain that negative electricity is a particular form of matter; and positive electricity is matter deprived of negative electricity—that is, minus the electric matter. Now, what is electricity? It used to be believed formerly that there were two kinds of electricity, one called positive and the other negative. At that time, it would not have been possible to answer the question. But recent researches make it probable that what used to be called negative electricity is really a substance.

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*E. Becher, *Philosophical Presuppositions of the Exact Natural Sciences.*

Indeed, the relative weight of its particles has been measured. Atoms of electricity are named electrons."*

So, the electron is not a mysterious entity. It does not destroy the conception of mass. It has a mass itself. Energy is not an immaterial entity. It is a form of matter. The new theories do not destroy the mechanistic conception of the Universe. They do not visualise motion without matter. Matter is not "dematerialised". On closer acquaintance, it yields more of its secrets for the knowledge of man. What has previously been believed lo be its absolute attributes, turns out to be relative—properties of matter in a certain state. The atom has not disappeared. The old conception of it has been modified in the light of a greater knowledge about it. The atom has disappeared as the basic unit of matter. It has been discovered to be a minute solar system, composed of a large number of infinitesimally small particles of matter. Having survived the "crisis", which overtook it in the beginning of the century, physics went through yet another period of tremendous progress. While the macrocosmic problems raised by the Quantum Theory were still to be fully grasped and solved, the Theory of Relativity revolutionised physics from the other side.

Whenever the human mind begins to penetrate unknown regions, idealistic prejudices are likely to creep in, because at that moment it is steeped in ignorance about the new field of investigation, notwithstanding all the knowledge that it already possesses. But at such points of transition, theories, established by previous experience, serve as reliable guides, and as guarantee against possible deviations.

In the introduction to the English edition of Lange's *History of Materialism*, Bertrand Russell, for example,, writes: "The Theory of Relativity, by merging time into space-time, has damaged the traditional notion of substance more than all arguments of philosophers. Matter,

*Chemical Essays.

for commonsense, is something which persists in time, and moves in space. But for modern Relativity Physics, this view is no longer tenable. A piece of matter has become, not a persistent thing with varying states, but a series of inter-related events. The old solidity is gone, and with it the characteristic that, to the Materialist, made matter seem more real than fleeting thoughts. Nothing is permanent, nothing endures; the prejudice that the real is the persistent must be abandoned."

The Theory of Relativity might go against the "commonsense" view of matter. But it does not destroy the scientific basis of the materialist philosophy. Indeed, the conclusion that "nothing is permanent, nothing endures", corroborates Heraclitus. The Epicureans also visualised time merging into space. Of course, owing to the backwardness of positive knowledge, they could not do so with any degree of mathematical precision or experimental exactitude. Nevertheless, the conception is not altogether new; far from being a negation of Materialism, it originated as an integral part of the mechanistic-physical view of the Universe.

The conception of time is inseparably associated with the idea of evolution. It would be very unlikely for the Theory of Relativity to dispute the evolutionary nature of things for the honour of being a handmaiden of Idealism. The Theory of Relativity presaged a higher stage of scientific knowledge. This it cannot conceivably do by knocking oft the very bottom of modern science. Besides, the conception of movement in space without time can be traced to Hegel, whose absolute Idea expresses itself all at once in nature—not in time, but only in space. This queer, altogether anti-scientific (one might even say, anti-Hegelian) conception is in crass contradiction to the Hegelian method of thought, which was based upon the accumulated experience of mankind. Historical Materialism as expounded by Marx and Engels exposes the impossibility of things happening not in time, but in

space only. Hegel set up the palpably impossible theory in order to establish the priority of absolute Idea. The Theory of Relativity has no axe to grind. Therefore, its conception of space-time is entirely different from the Hegelian fantasy of evolution in space but not in time. One represents a closer acquaintance with the objective reality of things, whereas the other is a view subjectively expounded for rounding up a system of speculative philosophy. The space-time conception of the Theory of Relativity is yet another step in advance towards a materialist monism.

The investigation into the atomic mechanism is still incomplete. Naturally, they are outstanding problems for physics. They are again hailed by the incorrigible opponents of materialism as the signs of yet another "crisis". But the questions raised to-day are of purely epistemological nature. The answer to them can be given only in the light of the relation between physics and psychology. The advance of biological knowledge, on the other hand, has thrown much light on that solution which to-day does not appear to be very distant. In the last analysis, epistemological problems are psychological problems. The present confusion regarding the ontological reach of the theories of new physics results from approaching physical problems from the psychological point of view. As regards the substance and structure of the world, there is, however, no room for any serious scientific doubt. Even the electron has been traced down to a state where particles disappear. To-day the substratum of the world has been revealed to be an all-pervasive substance. That is the philosophical implication of the "wave theory" of matter. The dualist conceptions of mass and motion, matter and energy have become untenable. The world has been analysed down to a unitary substance. Not only matter can be converted into energy, but energy also can be converted into matter. That has been demonstrated experimentally. So, enegry is a material entity. That being the case, the fact that the

substratum of the world is composed of waves of energy does not prove that the world is made of a spiritual substance. Physics thus has vindicated materialism, having provided it with an unshakable foundation of positive knowledge.

CHAPTER VIII

Materialism and Twentieth Century Physics

SCIENCE has outgrown the tutelage of philosophy, having found an empirical approach to the so-called metaphysical problems traditionally considered to be the concern of speculative thought. Philosophy speculated about them, but never solved them. Finally, science has compelled philosophers—those who are not blinded by the zeal for preserving the traditional monopoly—to admit that, if the nature of the contents of *a priori* metaphysical concepts, such as space, time, substance and causality, could not be revealed *a posteriori* by the advance of the empirical knowledge of objective reality, they should be discarded as empty abstractions. In other words, metaphysical concepts must be constantly revised in the light of empirical knowledge. A philosophy that disputes this relationship is antagonistic to the spirit of science. That is a system of dogmatic metaphysics, not to be defended by any scientist. Whenever any philosophical doctrine is rendered palpably untenable by verified results of scientific research, it must go. Otherwise, philosophy could not claim to be the science of sciences—a logical system of knowledge.

Now then, if it were true that modern physical research had exposed the concept of matter to be a metaphysical abstraction, devoid of any empirical, physical, ontological content, well, so much the worse for it. There would be no choice. It must go. That is the position of scientific philosophy. If there is no scientific evidence for the reality of matter, the concept can be plausibly dismissed as a commonsense prejudice. This has been done, for example, by philosophers like Whitehead. On the other hand, denial of the objective reality of matter and causality, as represented by Eddington, Bertrand Russell

and others, is *logically* sound. It can be convincingly refuted only on the evidence of science, on the strength of empirical knowledge. In one word, the defence of matter must be ontological.

What is the philosophical consequence of modern scientific theories? Having carefully examined all relevant materials, one must come to the conclusion that the physical content of the philosophical concept of substance stands out more clearly than ever in the revealing light of modern scientific research. The ultimate constituent of matter is an ontological category, an empirical reality, One of the fundamental problems of philosophy, hitherto regarded as of metaphysical nature, is solved through the application of the principle of relativity to the microcosmic mechanism.

What is the warrant for the contention that the Twentieth Century Physics denies the reality of matter? It has been discovered that deep down in the foundation of the structure of the physical world, the classical laws of mechanics do not hold good; that the ultimate constituents of matter have no simple location in space. The significance of this revolutionary discovery is that ultimately the stuff of the world is not a granular substance; that extension in space is not the final test of physical existence.

The theory of relativity empirically establishes the reality of time, instead of denying it. It has replaced a metaphysical ghost by a physical reality. The notion of absolute time in which nothing happens is bizarre. The metaphysical concept of absoluteness has no place in science. Physical science deals with measurable quantities. The essence of scientific method is to measure. The absolute cannot be measured. Therefore, it is an empty abstraction, as far as science is concerned, at any rate. It is no better even philosophically. The knockout blow to this venerable fiction was dealt by the absolute idealist Hegel himself, when he declared that "Absolute being is absolute nothing." Absolute time philo-

sophically, then, is timelessness. Absolute space and time figure in the Newtonian system only as hypotheses. Newton assumed the existence of those categories because, under the influence of scholastic tradition, he could not conceive of changing phenomena being existentially ultimate, self-sufficient. He identified reality with absoluteness, and regarded measurable distances and durations as appearances of absolute space and time. But having postulated the absolute, to square his philosophical conscience, so to say, as a scientist, he set it quickly aside, practically forgot all about it, and occupied himself exclusively with geometrical space and physical time. Indeed, as a scientist, Newton was a relativist. Moreover,. Newtonian absolutism has all along been vigorously corn-batted by great mathematicians and physicists since Leibniz. As a matter of fact, the Theory of Relativity celebrates the burial of the phantom of absolute space already layed by Mach. The disappearance of absolute time logically follows. The twin phantoms must stand or fall together.

The essence of Einstein's theory of gravitation is the elimination of the metaphysical concept of force which figures in the Newtonian system as an elementary indefinable. Newton regarded gravitation as a mechanical prenomenon—an interaction between material bodies and force. Immateriality of the latter is implicit in his dualism. The concept of force vitiated Newton's mechanistic natural philosophy, and contributed largely to the philosophical confusion of many a great physicist of the nineteenth century. In the light of conclusive empirical data amassed, through observations and experiments carried on by a great many physicists over a quarter of a century, in order to overcome a whole series of theoretical difficulties which appeared to defy the Newtonian laws, Einstein found gravitation to be a kinematic phenomenon, an effect produced by moving bodies. The classical concept of matter-in-motion is dualistic. It compels the postulation of an extraneous, that is to say, immate-

rial agency to cause acceleration. Metaphysics casts its confusing shadow on physical knowledge. The kinematic interpretation of gravitational effect frees physics from the dualist concept of matter-in-motion. Movement being a property of matter, the postulation of an extraneous agency becomes superfluous. That is the philosophical significance of Einstein's theory of gravitation. The significance is to establish the sovereignty of matter. This could be done only upon the discovery of the relativity of motion; and that discovery logically led to the revision of the concepts of space and time.

What is gravitational influence? How does it propagate? Why is there such an interaction between bodies, and why is it governed by a mathematical law? How is action at a distance possible? In course of development, physics was confronted with these questions, which could not be satisfactorily answered by the classical theories.

Careful study of the "Principia" shows that Newton himself felt that his theory was rather a description than explanation of observed phenomena; that it did not expose their physical cause. This is made clear by the passage in which the famous expression—"hypothesae non fingo"—occurs. The law of inverse square does not tell us anything about the nature of gravitation. Force was simply a name for an unknown category. Mathematical laws are symbolic expressions of invariant physical relations. Newton's theory of gravitation did not reveal the physical relation between gravitating bodies. That had still to be done. The concept of force was like the algebraic symbol *x*. It stood for an unknown quantity which had to be discovered. Einstein's theory represents that discovery. It is the completion of an investigation begun by Newton.

Action at a distance is a physical impossibility. On the other hand, classical mechanics was founded on the concepts of mass-points moving in empty space. The difficulty was surmounted by assuming that energy propagated through empty space. The assumption was

founded on the emission theory of light. The vindication of the undulatory theory by Young and Frensel naturally demanded the postulation of a medium of propagation. Huygens had felt the necessity, but hesitated to endow space with the properties of an elastic solid. Frensel ventured to assume a pervasive medium with the necessary properties. His attitude was pragmatic. The problem was left to be solved eventually. Ether occupied a place in physics—to contradict the notion of empty space. But its admission, on the other hand, raised a new question: what really is the substance, the periodic changes of which, or in which, is light?

While the question remained unanswered, the idea of ether was reinforced by the development of the science of electricity. Faraday found that electric and magnetic actions between two bodies were dependent on an intervening medium. He concluded that a field of force (gravitational, electric or magnetic) was a field of action at a distance; that the inter-action of bodies took place through an intermediary. Though Coulomb's law had pointed to the similarity of electric action and gravitation, Newton's authority precluded the application of Faraday's revolutionary discovery to mechanics generally. The final blow to action at a distance was dealt by Maxwell's generalisation of the results of Faraday's experiments. Since effects that take place through a medium are transmitted through space, this must be an electro-magnetic medium. The outstanding question about the nature of ether was answered. According to Maxwell, any change in an electric or magnetic field propagates in all directions with uniform finite velocity. Thus propagation of energy came to be regarded as propagation of real physical states.

Laplace, Gaus and Boisson had mathematically pictured the Universe as a network of "lines of force". These appeared now as mathematical expressions of electro-magnetic states propagating through space. At the same time, the finiteness of the velocity of light also

resulted from Maxwell's equations. That again indicated that space could not be really empty. The existence of a pervasive medium theoretically established, it should be possible to ascertain absolute velocity through space. But experiments (of Michelson, Morley and others) gave negative results, which could not be explained without *ad hoc* accessory hypotheses ("Fitzgerald-Contraction" and "Lorentz-Transformation"). Finally, Einstein suggested that the explanation was to be found in a new theory of kinematics.

The impossibility of determining absolute velocity showed that "pure motion", mathematically treated in classical dynamics, was a fiction. The Special Theory of Relativity laid the foundation for an empirical theory of kinematics, which exposed the underlying connection between gravitation and electro-magnetism. On the one hand, there is no action at a distance and, on the other, space is not filled with a pervasive medium. Observed phenomena, described as Fitzgerald-Contraction or Lorentz-Transformation, are not produced by a direct physical cause, namely, pressure of a stationary medium (ether), but are kinematic effects of relative motion. That is the physical principle of relativity in the light of which (elaborated in the General Theory) the field of force, gravitational as well as electro-magnetic, was later on discovered to be a metric-field. The "lines of force" of classical physics are Minkowski's "world-lines" which, described by moving bodies, constitute the texture of space. But Euclidean geometry won't do for the new conception of space.

Bolyai, Lobatchewsky and Riemann had already shown the theoretical possibility of non-Euclidean space. In the light of Einstein's Kinematics, "metageometry", hitherto regarded as a purely speculative construction, appeared as the picture of physical reality. Kinematics became identified with geometry which was merged into physics. Gravitational effects are produced by the structure of space. Gravitational field is a metric-field, the

potentials of which are determined by the distribution of matter. All physical processes are to be traced down to the common foundation of moving bodies. Gravitation is a physical phenomenon, an empirical reality, but there is no such thing as gravitational force acting upon bodies at a distance any more than there is a pervasive medium (ether) for the propagation of energy, unless this is identified with space, which itself is physically real only as a function (extendedness) of matter. Einstein himself favoured retention of the concept of ether with this content.

A really new theory of gravitation must show that it is neither a mechanical phenomenon caused by the operation of an extraneous force, nor a kinematic effect produced by the relativity of motion. The classical view has been discarded in course of the development of physics; and the new, incorporated in the General Theory of Relativity, is the logical outcome of the whole process of development. The merging of space and time in the four-dimensional continuum is compelled by the necessity of explaining observed facts which cannot be fitted into classical concepts. The necessity for a new theory of kinematics (a revision of classical dynamics) results from the demonstration of the fact that finiteness of the velocity of light precludes the determination of absolute motion even through the means of optical or electric processes. The finiteness of the velocity of light is the empirical foundation of the physical principle of relativity. It is determined by the properties of "empty' space. On the other hand, "empty" space need not be filled with an imaginary medium of transmission, being itself an electro-magnetic field the potentiality of which can be measured mathematically, in terms of tensor-impulse. Gravitation is an electro-magnetic phenomenon; and the electro-magnetic field is a metric-lield. Now, it can be seen that even Coulomb's law leads to this unitary foundation of all physical processes. But it stands out clearly, amenable to mathematical treat-

ment, only when it is reduced to the four-dimensional continuum.

The critical question is what is the nature of the cause that produces the effect called gravitation? Newton left the question unanswered. Einstein has given art answer which is empirically well-founded, logically sound, pragmatically successful.

Time is perceived in two ways, namely, the change of the position of the body, and the change in its state. In the last analysis, the second way is identical with the first; it consists of the sum total of the changes in the position of the molecules, atoms and electrons constituting the body; and these are bodies themselves. What is the state of a body? A state of physical organisation. According to the classical theory, the physical reality of entities entering into the organisation consists of their extension in space. Any change in the organisation implies change of the position in space of its constituents. So, it is not correct to say that in the second case time is independent of space. As a matter of fact, if time ever existed independent of space, it could not be experienced. Therefore, the concept of absolute time leads logically to the denial of the reality of empirical time. Classical idealist philosophy draws this logical conclusion. To-regard them as independent categories, in the sense that cither of them can exist by itself, is a metaphysical abstraction.

The mathematical device of the Theory of Relativity purports to express the quantitative value of the objective content of our experience. Since space and time are always found mixed up together, to regard them as independent categories is obviously an arbitrary procedure. The question then is, how do these quantitatively distinct categories get so inextricably interwoven? Rela-. tivity Physics answers the question, thus helping the solution of a problem that puzzled philosophy for ages. Space and time are not categorical entities, not ultimate realities. Not only are they mutually interdependent;

they derive their very existence from a common source which ontologically is antecedent to them both. *They are functions of the physical existence.* Hence, though quantitatively so different, they are always inextricably mixed up except in abstraction. Even their qualitative distinction is apparent. Fundamentally, they represent the self-same physical reality—extension or extendedness of matter, geometrical and chronological respectively.

We find it difficult to grasp this new ideas simply because our minds are habituated to flow in an old rut. A little reflection is necessary to realise the remarkable simplicity and logical soundness of the new conception of space and time. Indeed, it is surprising that throughout the ages philosophers should have managed to mystify something so obvious. Space was postulated as the receptacle of things, because these must be somewhere. The primitive logic of naive commonsense made location antecedent to existence. Speculative philosophy could never outgrow the primitive logic of its infancy. But the fallacy is obvious. If things must exist somewhere, space itself must have a location. Otherwise, it cannot exist. Thus the idea that existence is dependent on location leads to *regresso ad infinitum.* According to the very traditional definition of existence, space does not exist except as extension, and extension logically presupposes something extended. This idea about the structure of space is implicit in Euclidean geometry. A line is not the integration of the bits of space separating points, but of the points themselves; and the plane is the sum total of a number of lines. Since space is constructed of points, it is a product of existence. The function of the point is to exist. Existence therefore is antecedent to space.

The analysis is equally applicable to the concept of time. Duration also is conditional upon existence. The logic is self-evident. A thing must be, in order to become. The idea of time is born of the primitive experience of interval between events which are changes in

existence. Becoming is a string of events constituting the life history of a' thing. Space is being and time is becoming. More correctly, space is the measure of being and time that of becoming. While pure being is conceivable, becoming always involves being. Thus, time can never exist independent of space. Nature has welded it together with space.

This simple analysis of the commonsense idea of space and time leads directly to the picture of a Four-dimensional continuum. Being is three-dimensional. But the world is a process of becoming. Pure being, that is, eventless existence, is an abstraction. Becoming is four-dimensional, because it embraces existence and change, space and time. A process of becoming is a four-dimensional continuum. The world picture presented by the Theory of Relativity is a matter of commonsense and elementary logic. It is not an artificial mathematical construction. Artificial and illogical are the traditional concepts of space and time. The march of knowledge was bound to reject them.

The four-dimensional continuum of the General Theory is the logical outcome of the rejection of the traditional view of time. The intervening step was the corresponding revolution in the concept of space. The disappearance of absolute space as well as of absolute time leaves matter as the ultimate constituent of the physical Universe.

Minkowski's mathematical restatement of the kinematics of the Special Theory showed that time could be treated as the fourth member of a system of co-ordinates. That was the mathematical expression of the physical implication of Einstein's kinematics, which subsequently developed into the General Theory. The implication was the inter-dependence of space and time, which resulted from their common dependence on matter. The "four dimensional space" is the graphical picture of three-dimensional motion. The time-function involved in motion appears as the fourth co-ordinate. The sub-

stance of Minkowski's theory was that the New Kinematics showed the physical possibility of a four-dimensional geometry. If a four-dimensional geometry was theoretically possible, space could 'not be Euclidean, not everywhere, at any rate. But non-Euclidean space is no space; it must be something ^lore than space: therefore, it is four-dimentional. The magnitude treated by four-dimensional geometry is not space in the traditional sense; it is a physical continuum—a field of three-dimensional motion. Thus, motion absorbs not only time, but space also. Bur there is no pure motion. The empirical reality is moving bodies. Physically, motion is their .mutual relation In other words, motion is a function of matter. Consequently, the "space-like" and "time-like" dimensions are also functions of matter.

The four dimensional continuum is three-dimensional space filled with *action.* The physical reality of the four-dimensional continuum can be deduced from the fact, known to classical dynamics, that action is a product of energy and time. The full significance of the fact had to be revealed by the Theory of Relativity. It is the interlocking of space and time as functions of matter. Time cannot be abstracted from energy nor energy from time, because oscillation is a periodic as well as a physical phenomenon. Energy is equivalent to mass; mass implies extension, which is the physical equivalent of space. On the other hand, Einstein's conversion formula shows that *action* is not an imaginary magnitude of pure mathematics, but a material entity. The constant of the Quantum Theory (Planck's Constant) is an atom of action. The minutest fraction of energy, Planck's Constant, has mass. "Empty space" is filled with energy-impulse. That is the "gravitational force". In "empty space" the gravitational constant is equal to energy-impulse, which is equivalent with the mass of a light quantum. Thus, gravitation ultimately is a function of mass, that is to say, a property of matter expressed mathematically as energy-impulse, which fills space.

The Theory of Relativity reduces the entire cosmic scheme, including space, time, mass, motion, force, energy, to one single category—matter. The ultimate unit of this fundamental reality is conceived as "event", instead of mass-point, in order to lay emphasis on its dynamic character. The world is not a static being; it is a process of becoming. Therefore, it should be interpreted in terms of "events", that is, of changes in the state of its ultimate constituents. Only that way can we .get a realistic picture of the cosmic scheme. Because "events" are dynamic physical magnitudes, intervals between them are spatial as well as temporal. The law of least interval promises to be the quintessence of all the fundamental laws of physics; and the way to the discovery of this law lay through the revolution in the idea of space and time.

So long as physics and philosophy believed in absolute space and time, regarded these as ultimate categories logically antecedent to being and becoming, the criterion for the reality of matter was simple location. Matter was conceived as minute particles of mass occupying discrete positions in space at given moments of time. Atomic physics has discovered that matter does not possess these properties, always, in the absolute sense. Position and velocity cannot be simultaneously ascertained. (Heisen-berg's "Principle of Uncertainty"). The notion of simple location in space must be abandoned. Since there is no-absolute space, location in space is meaningless. So also is the temporal criterion. The difficulty results from the application of non-existing standards. In the statement of his "Principle of Uncertainty," Heisenberg himself makes the position quite clear. He says that the difficulty disappears if the classical concepts of space and time are abandoned. (V. H. Heisenberg, *The Physical Principle of the Quantum Theory).*

The New Quantum Theory does not imply denial of the reality of matter as such. The problem raised by it is about the structure of the ultimate substance. Philo-

sophically, it completes a task begun by the Theory of Relativity. It abolishes the notion of absoluteness regarding the remaining two categories—substance and causality. The concept of substance is affected by the revolution in so far as it was identified with mass. Mass is a property of matter (substance), but it is variable like all other properties. The absoluteness of mass disappears already in the Theory of Relativity. The origin of the wave conception (electric theory) of matter can be traced to Einstein's conversion formula: Energy is a form of matter, and this is a vibratory substance. Atomic physics has reduced matter to energy. That does not mean denial of matter. No Quantum physicist denies the existence of the atom or of its constituents—electrons and protons. The revelation is that these even are not the ultimate units of matter. But no serious scientist maintains that measurable entities can emerge out of nothing. The dual structure of matter is not an *ad hoc* hypothesis. It is a mathematically precise theoretical deduction, and has been experimentally verified.

From one side, physics has been compelled to abandon the idea of a medium of propagation; and, from the other, it has been pushed to the conclusion that matter ultimately is not a granular, but vibratory substance. Schroedinger-waves are periodic changes in a vibratory substance—the so-called field-scalar. It is the density of the electric charge of the field. Since the quantitative value of a charge of electricity is known, the physical magnitude of the groups of converging waves ("wave-packets") is a matter of differential calculus. And it is found to be such as equates with the mass of the electron. So, wave-mechanics does not deny the reality of matter. It deals with physical processes which cannot be analysed down to particles nor to propagation of energy through a medium. Quantum physics reduces matter to electricity, which is vibratory as well as corpuscular. Static electricity (electric field) is a field of vibratory motion. An electric current is a stream of electrons which are

material particles. Just as in the Theory of Relativity space and lime, as ontological categories, appear as functions of matter (mass), just so are the magnitudes of mass and energy traced down by Quantum Physics to the common foundation of a vibratory substance.

It has been suggested by positivist philosophers and some physicists, given illogically to super-empiricism, that these revolutionary discoveries about the nature of the foundation of the physical world make the concept of substance untenable. Evidently, that is a verbal squibble. The fact is that mass is no more absolute than space or time. It is a relative concept. The mass of a body is related to its motion. The concept of substance has to be revised only in so far as it implied absoluteness of mass. It is not composed of "rigid lumps of reality". But substance—the stuff of the world—remains; and the stuff of which the physical world is made is a material substance. Neither logically nor empirically can the existence of matter be denied.

The Schroedinger-Heisenberg theory of wave-mechanics represents a new conception of matter. Its constants are all physical entities. Even Heisenberg, with his marked positivist bias, does not maintain that sub-atomic mechanism is not a physical process. His is pure empiricism. His position is that it is useless for the purpose of exact measurement to assume motion (of revolving electrons) that cannot be observed. In other words, spectral lines should not be explained by hypothetical processes inside the atoms; the method should be reversed to infer various states of sub-atomic mechanism from spectroscopic phenomena that can be directly observed.

The Heisenberg school rejects the Schroedinger idea of wave-packets on the ground that these are unobservable entities. But here we have a difference of method only. Because, Schroedinger was able to show that Heisenberg's theory led to the self-same physical results. The radiation from atoms reveals their internal states, changes in which can be deduced from spectroscopic data.

Whatever may be the approach to the problem of subatomic mechanism, neither of the methods denies that the problem is physical, that the category (wave), mathematically or symbolically treated, is a physical magnitude—an ontological reality.

It has been contended that Heisenberg's theory reduces substance to a mere logical concept, and an inference from observed physical processes; that physics could leave that concept aside and deal *formalistically* only with the processes as periodic changes; and that it is useless to raise the question—changes in what? Because, any answer will involve assumption of magnitudes not directly observable. The question raised by the new Quantum Theory is not about the ontological reality of microcosmic magnitudes; it is about the usefulness *(for technical scientific research)* of assuming that they are magnitudes of something. The suggestion of the Heisenberg school is that, instead of getting involved in a controversy about the structure of primordial matter, physics may, *for its own purposes,* deal with microcosmic phenomena symbolically. Let us be content with measuring the measurable without bothering about the nature of the magnitudes measured. The philosophy of this attitude is, logically fallacious. It does not deny the existence of an object of measurement; and that is matter, however it may be constructed.

As a matter of fact, philosophically, Heisenberg's position is Kantian. He suggests that, just as the Theory of Relativity compelled a profound revision of the traditional notions about space and time, Quantum Physics is bound to modify the concept of substance in the Kantian sense. The ultimate object of knowledge is a formless mass, which enters into our experience only when cast in certain *a priori* moulds of perception. This fundamental principle of Kantian epistemology is obviously quasi-subjectivist; but Kant was far from the absurd position of denying the reality of the object of knowledge. As a physicist, he was an orthodox Newtonian. So, Heisen-

berg's inclination towards Kantian quasi-subjectivism does not imply denial of matter. He does not deny the objectivity of the material world. His point is that our knowledge of physical processes is largely subjective, being necessarily dependent on our intelligence; there is a limit to the accuracy of measurement because in the microcosmic world the position and velocity of entities are disturbed by the very act of measuring them. Evidently, the issue is epistemological—how far do physical theories, particularly those dealing with sub-microcosmic processes, give a true picture of the objective reality? There is no question about the fundamental fact that physics does describe processes in something which actually exists—outside the mind of the physicist. It is a measurable magnitude; therefore, it is physical. Materialist philosophy, with the more appropriate name Physical Realism, is corroborated by the latest scientific knowledge.

CHAPTER IX

Materialism and Practical Idealism

MATERIALISM is the philosophy of revolution. Revolutions are inherent in the process of human development. Therefore, materialist philosophy is a necessity in all .ages. According to it, knowledge is derived not in passive contemplation, but in action. "Philosophers have interpreted the world in various ways, but the real task is to transform it."* Only in the process of transforming the world continuously, does the store of human knowledge endlessly increase; and the knowledge of a given epoch is valuable in so far as it enables man to transform the world, thereby opening a new epoch of progress.

Materialism is not satisfied with contemplating what exists. It investigates the existing with the object of finding in it the germs of a future, higher state of existence. It categorically rejects the shameful doctrine of ignorance—that there is a limit to our ability to know, a doctrine which, however plausibly dressed up in the garb of pseudo-science, harbours all the traditional enemies of science and of the real spiritual freedom Of man—God, faith, religion, metaphysical abstraction, mysticism, occultism, so on and so forth. The materialist theory of cognition is firmly based upon a critical examination of the experience of mankind ever since the days of its birth. By destroying the doctrine of eternal ignorance, and proving that there is nothing beyond the reach of human mind, that super-sensual categories are pure myth, materialism sets human spirit free. The freedom from the metaphysical conception of the absolute, immutable, categorical, liberates man from the fetters of the traditional, of the respect and awe for the established order of

*Marx and Engels, *Thesis on Feuerbach.*

the world. There is nothing sacrosanct, nothing permanent, nothing eternal. To change is the nature of everything. "Change is the only thing permanent," as old Heraclitus taught. Materialist philosophy inspires mart to change the world and himself in the process.

Another distinguishing feature of materialism is that it is not a closed system like all the other schools of philosophy. It is not a dogma. It is a method of approaching nature, history, society—in short, life as a whole, in all its diverse departments, to learn the truth about it progressively, but surely. Indeed, in a way, materialism liquidates philosophy (in the narrow, speculative sense), inasmuch as it declares that there cannot be a closed system of complete knowledge, that there cannot be an end to the process of acquiring knowledge. Thus, philosophy ceases to be the brain-child of this or that or the other individual; or of a spiritually gifted race inhabiting a certain part of the globe. It becomes the highest spiritual creation of the entire mankind—a mighty lever to greater activity and higher knowledge on the part of man. The mission of philosophy is thus identical with the mission of mankind.

Generally, idealism is identified with the virtue of dedicating life to an Ideal. The idealist philosophy, however, is quite different from what is called "idealism" in common parlance. Apart from their wider meanings, even etymologically, the two terms are quite distinct. The former is derived from the word "idea", whereas the latter, from "ideal". The so-called "practical idealism" has nothing to do with the idealist philosophy. It is not rejected by the materialists. Indeed, the philosophical materialist is the greatest practical idealist. Can there be a higher ideal than to rebuild the world into a befitting home for a free, enlightened, happy mankind with an endless perspective and possibility of progress opened before it? And there is nothing in life which every convinced materialist would not willingly sacrifice to advance mankind even one step towards that goal. Who is a

greater "idealist", in the practical sense—the atheistic scientist who cheerfully risks his life, often to death, to discover the cure for a fatal disease, or the pious anchorite who withdraws himself into the shell of his ego to save his precious soul, or the self-satisfied individual seeking beatitude in religious experience? Who is sincere in his idealism? The revolutionary who heroically faces persecution, prosecution, starvation, even death, either on the gallows or on the barricade, for the cause of human freedom; or the comfortable bourgeois or his well-paid and muddle-headed spokesman who sanctimoniously talks about "high and noble ideals" of life which only cement the social system of slavery, poverty, ignorance, demoralisation and degeneration? The moralists and' Mahatmas preach the virtue of "simple living and high thinking" as hypocritical defenders of the vulgar materialism of the upper classes who, notwithstanding the-pious teachings of their spokesmen, live a life of luxury and think meanly, if at all. If they don't do so consciously, (which may often be the case), such is the practical force of their "noble and lofty idealism". Only associated with the materialist philosophy, can practical idealism be sincere.

The materialist does not reject practical idealism. He alone practises it consistently, sincerely, whole-heartedly. With the spiritualist, of any hue or shade, Western or Eastern, religious or philosophical, it is sheer philistinism, covering the egoistic essence of his cult. The ideal of life is the motive force of the life of the materialist. It is inseparable from his life. It grows out of his view of life. It is a part of his own self. The materialist is a practical idealist, because he cannot possibly be otherwise without abandoning his philosophy. For him, practical idealism is not a virtue to be cultivated under duress; it is natural. Without an ideal, life appears to him meaningless—not worth living. He lives for an ideal,, is "righteous and noble" like Epicurus, "because it is a.-pleasure to be so."

Russia is the only country where materialism has become the official philosophy. Were the popular notions on materialism true, then, Russia to-day would present a crazy carnival of sensuousness and moral degeneration, deplored by the sanctimonious spiritualist. But what is really the moral atmosphere in the land of materialism? Let a truthful spiritualist paint the picture: "Godlessness may be the creed of Communism, but certainly not loveiessness. Everywhere one finds ardent Communists willing to give their lives for a cause which they believe is wordi dying for. They may be working under desperate hardships, they may be sent on dangerous missions, they may be members of shock-brigades in the factories, toiling long hours at miserable wages, but they glory in sacrifice. To them, it is a privilege and an honour actually to help to translate into life the ideal of justice for all the people."* It is just the opposite with the spiritualists. They ,may be idealists in philosophy, in so far as they are able to look upon life philosophically; but practically, they can have high ideals and live up to them only because they are compelled to do so by a force which is not in them and which is superior to their own humanness. The believers in the spiritual essence of man and in the priority of the spirit over matter do not trust man to be virtuous, noble, moral, that is, to live an ideal life, by himself! Thus, they debase their own God—ridicule their own philosophy. This is not an interpretation, but admission of the spiritualists themselves. Here are two typical examples—one from the West, and the other from the East. Mazzini's "Duties of Man" is the handbook of practical idealism Mazzini refused to have anything to do with the materialist ^Marx, although none championed the cause of national liberation more ardently than the latter. There was a deep philosophical difference involved. In the opinion of the prophet of nationalism, man had only

*Dr. Jerome Davis, Professor of Practical Philanthropy at the School of Divinity, Yale University, U.S.A.

duties; he totally ignored the rights of man. The philosopher of nationalism evidently had not read such historical documents as the epoch-making book of Thomas Paine or the ringing "Declaration of Rights" of the French Revolution. They also raised the voice of the bourgeoisie: but then the bourgeoisie was a revolutionary class and professed a largely materialistic philosophy. As a revolutionary class, necessarily with a revolutionary outlook of life, at the time, the bourgeoisie fought for the "Rights of Man". Less than a century later, Mazzini's philosophy of freedom totally disregarded the rights of man, and placed before him only duties. This is a classical example of what is commonly understood and admired as "Idealism". As a matter of fact, it is a doctrine of slavery. Duty without right is servitude. Nevertheless, Mazzini stood on the ground of spiritualism. He wrote: "The idea of an intelligent first cause once destroyed, the existence of a moral law supreme over all men, and constituting an obligation—duty imposed upon all men, is destroyed with it." That was evidently an attack upon materialism. Spiritualism is thus found to have defended a doctrine of slavery in the name of freedom. Philosophically, Mazzini laid down the foundation of Fascism.

Here is the opinion of the generally acknowledged contemporary authority on Hindu philosophy: "Our moral experience is not highest. The religious experience transcends the moral. Moral life may presuppose an unfinished Universe, a finite God, and a doubtful struggle. But the moral life would lose its validity and meaning, and moral struggle its inspiration, without the religious assurance. Morality points itself to religion, where we feel the oneness of the Universe, and see all things in God. Onlv the religious conviction assures us of the triumphant of good."* Practical idealism is

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*Radhakrishnan, *The Reign of Religion in Contemporary Philosophy*.

possible only under the compulsion of religion! Man cannot be moral, intelligently, by conviction. Only the cudgel of the gods can compel him to behave decently. And we shall only have to look at the face of Mother India, the moral and spiritual condition of her famished children, to realise what sort of a moral tone results from religion.

The development of modern science coincided with the rise of a new social force in Europe—the class of traders, manufacturers and bankers, struggling to liberate themselves from feudal bondage. By repudiating the authority of orthodox religion and theology, science destroyed the ideological foundation of the feudal social order. Deprived of the spiritual justification, the rule of absolute monarchy and despotic nobility must go. The bourgeoisie preached, and eventually asserted, the "sacred right of revolt"—in temporal as well as spiritual matters, and became the ruling power. In a changed situation, under a new relation of classes advantageous to themselves, their outlook changed. As an oppressed class, they had advocated revolution, ideological as well as political; in power, they became conservative.

Without an authority, there could be no domination of one class over the entire society; and an authority on earth cannot be firmly established unless backed, directly or indirectly, by some celestial or super-natural authority. So, faith and religion were rescued from their ruins. For the vulgar, the old discredited God, with all his threadbare paraphernalia, was again allowed to rule; but the intellectual elite had become too sophisticated to relapse into crude beliefs, severely shaken, if not thoroughly exploded, by science. For their edification, religion appeared in the new role of idealism: The untenable doctrine of a personal Creator was replaced by the fascinating fantasy of the Abstract—Transcendental Idea.

The brilliant critic of the Christian Church, the cynical Voltaire./himself became an advocate of the lost

cause, and replied the atheism of other philosophers, with the following argument: "If there is no God, we must discover one. Give Bayle (the most outspoken and consistent atheist of the eighteenth century) five hundred peasants to rule, and he will immediately recognise the usefulness of religion." This is the most forceful argument against religion, advanced by its defenders themselves. It holds up God and religion in their true role.

If the selfish interest of the bourgeoisie came in conflict with the philosophical revolution, and sought to curb its progress, the future of mankind required its consumation. Therefore, it was impossible to resist the historical striving to appreciate properly the far-reaching theoretical value of scientific discoveries, in their entirety, with the object of weaving them into a comprehensive system of philosophy. In order to disown the materialistic tendencies of its birth, modern philosophy had launched upon the wild career of idealism which was raised to a giddy height by Hegel. In his eagerness to vindicate the basic principle of a true philosophy, namely, the unity of things, Hegel destroyed modern classical philosophy. Without a dualist conception of the Universe, idealist philosophy is not possible. A monist conception must be either materialistic or be lost in the inextricable wilderness of solipsism and nihilism. If the original unity is reduced to a spiritual existence, the phenomenal world must be declared to be a hallucination. For, matter can never evolve out of pure spirit, except with the intervention of omnipotence which knows no law. With the postulate of such an intervention, religion is restored to the throne of authority, and philosophy must accept a humble place at the foot, of the throne.

In the age of science and positive knowledge, mankind cannot possibly believe that the grand process of the evolution of the Universe is a bad dream. Therefore, materialism must be its philosophy, should it have any philosophy worth the name. In the bright light of the materialist outlook, the problems of nature, life, history

and society appear devoid of all mystery, and man attains the full height of his power and glory, as the sole master of his own destiny.

To prove that Materialism offers genuine spiritual emancipation, no better evidence could be adduced than that of the German scholar Albert Lange, who wrote a monumental history of Materialism with the object of refuting it—but unsuccessfully.

"Greek philosophy, springing from a materialistic origin, after a short and brilliant passage through all conceivable standpoints, found its termination in materialistic systems and materialistic modifications of other systems....If by practical Materialism we understand a dominant inclination to material acquisition and enjoyment, then, theoretical Materialism is opposed to it, as is every effort of the spirit towards knowledge. Nay, we may say that the sober earnest which marks the great materialist systems of antiquity is perhaps more suited than an enthusiastic Idealism, which only too easily results in its own bewilderment, to keep the soul clear of all that is low and vulgar, and to lend it a lasting effort after worthy objects."

What is said here about ancient Materialism is applicable all the more to the modern materialist philosophy. For, the latter, based upon the general principle propounded at the birth of philosophy, is no longer a hypothesis, but a conclusively verified cosmological conception which opens up before man an endless perspective of continuous progress.

What, vulgarly or by mistake, is taken for Materialism, and so sanctimoniously condemned by its opponents—religionists, spiritualists, idealists, etc.—has nothing to do with the materialist philosophy. Indeed, it is the very essence of religion which is materialist in the worst sense of the term. Egoism induces man either to pray for his daily bread or to strive for the salvation of his soul. The doctrine of supernatural creation is the basis of all religion. This doctrine glorifies unbounded egoism as the

attribute of God or the property of the Final Cause. The world is either the product of the arbitrary will of an all-powerful, that is, irresponsible God, or a permanent miracle—something growing out of nothing. The world has no being in itself and by itself. Product of an arbitrary or miraculous act, it is always governed by arbitrary laws which, in the last analysis, can mean only the expression of an unbounded ego. The supreme egoism of religion reaches the climax in Hinduism,* which paradoxically claims to be the most spiritual of all religions. According to it, the creation is the play of God. The object of human devotion, which is assumed to be the reservoir of all ideals, is the greatest egoist conceivable. For his own pleasure, he plays with worlds and with the fate of men. The God is the personification of power, absolute and unrestricted, created after the image of the man of elemental desires and ambitions. He is arrogant, arbitrary, merciless, lusting for power. Believers in such a "divine ruler" or "spiritual principle" are necessarily adepts to the egoistic dictum: Each for himself, the devil take the hindmost. Helpless play-thing of an unbounded and irresponsible Ego, man can have no other ideal than to save himself. The much applauded virtue of renunciation is the supreme form of selfishness. It simply means that to save your own precious self, the rest of the world may go to the devil.

The religious man's view of nature is purely utilitarian. In the beginning, he worships (not from devotion, but from fear) the imaginary gods so that he may get all he wants. The ideal of Heaven, be it of the Hindus, Moslems or Christians, makes the most fastidious bon-vivant's mouth water. Later on the religious man looks upon naturt as a dark, evil, passive thing which becomes the world only for himself, either as the bounty of God, as the reward for the religious, or as a gratuitous stage-

*A panegyrist of "Indo-Aryan spirituality", like Havell, finds the Vedic religion to be "gross materialism"

setting for the soul to perform the magic of bursting an imaginary chain.

For the materialist, in contrast, nature exists by itself not to satisfy man's egoism, but to be admired, observed, investigated and known by man, himself a product of nature. In this attitude towards nature lies the root of all the noble qualities of man which Materialism is supposed to kill. The holy man, who deplores the perversities of the wicked world, retires on the altitude of his "spiritual" egoism to save himself from the deadly contagion. But a scientist, who may not believe in any God, cheerfully and without the arrogance of a holy egoist, sacrifices his life for the benefit of the world. The supreme selfishness of deserting the ship because it appears in one's dream to be in flames, is foreign to Materialism, which does not find fault with the world, but accepts it as it is with the object of improving it. The materialist philosophy does not passively interpret the world and impotently bewail its defects. It shows the way to rebuild it. While religion binds man in his own petty egoism, the human spirit finds unrestricted freedom in Materialism. Man goes beyond the narrow limits of his self only when he gets over the idea of super-natural creation, and is able to look upon nature as existing by itself in all its beauty,' grandeur and potentialities. Only then, he merges his self in the universe. The religious man's morality is either hypocrisy or performed under duress. The materialist is moral by his own conviction. He practices virtue not as payment for a place in Heaven or for the salvation of his soul, but simply because he cannot help it. His conception of man as an infinitesimal particle in the grand scheme of the cosmos makes absolutely no room for egoism.

APPENDIX

Notes to Chapters I, II & III.

In Chapters I, II and III there are several references to and quotations from Sanskrit texts. Tarkateerth Laxman Shastri Joshi, Editor, *Dharmakosh*, Wai, Poona, has kindly compiled and arranged the original texts and transliterated them in this appendix. The following system of transliteration has been followed:

Sanskrit Alphabets:—

a	अ	k	क	t	त
ā	आ	kh	ख	th	थ
i	इ	g	ग	d	द
ī	ई	gh	घ	dh	ध
u	उ	ṅ	ङ	n	न
ū	ऊ	c	च	p	प
e	ए	ch	छ	ph	फ
ai	ऐ	j	ज	b	ब
o	ओ	zh	झ	bh	भ
au	औ	ñ	ञ	m	म
ṁ	अं	ṭ	ट	y	य
ḥ	अः	ṭh	ठ	r	र
ṛ	ऋ	ḍ	ड	l	ल
		ḍh	ढ	v	व
		ṇ	ण	ś	श
				ṣ	ष
				s	स
				h	ह
				ḷ	ळ

CHAPTER I—PHILOSOPHY, METAPHYSICS AND THEOLOGY

Page 15 line 34 et seq.: Evidences of dissatisfaction...composed. Thus, for example:

Plavā hyete adṛdhā yajñarūpāḥ
Aṣṭādaśoktaṁ avaraṁ yeṣu karma
Etat śreyo yebhinandanti mūdhāḥ
Jarāmṛtyuṁ te punarevāpi yanti.

Page 17 line 28 et seq: "A king...Brahmins". Here is the relevant text:

Ḍhanāni tebhyo dadyāstvaṁ yathāśakti yathārhataḥ
Sāntvayan parirakśnśca svargamāpsyasi durjayam
12/71/23.
Yadi svarge paraṁ sthānaṁ dharmataḥ parimārgasi
Yatkiñcit jayase bhūmiṁ brāhmaṇāya nivedaya.
12/72/13.
Alpāntaramidaṁ śaśvat puraṇā menire janāḥ
Yc yajetāśvamedhena dadyad vā sādhave mahīm
13/62/21.
Brāhmaṇānām hṛte kśetre hanyāt tripurusam kulam
13/62/71.
Adaṇḍyāścaiva te putra viprāśca dadatāṁ vara
Bhūtametat paraṁ loke brāhmaṇo nāma Pāṇḍava
13/56/22.
Adbhyognirbrahmataḥ kśatramaśmano lohamutthitam
Teṣāṁ sarvatragaṁ tejas svāsu yoniṣu śāmyati
Ayo hanti yadāśmānamagninā vāri hanyate
Brahmaca kśatriyo dveṣti tadā sīdanti te trayah
Mahābhāratam, 12/56/24, 25.

Page 18 lines 33 et seq: The ancient Vedic idea...Mantram. Thus for example:

Ṛco akśare paramevyoman Yasmin devā adhi viśve niṣeduḥ
Ṛgveda, 1/164/39.
Śabdabrahma yad ekaṁ yaccaitanyaṁ sarvabhūtānāṁ
Yatparināmas tribhuvanaṁ akhilamidaṁ jayati sā vāṇī
Atharvaveda Bhāśya, 1/1/1.
Atharvamantrasamprāptyā sarvasiddhirbhaviśyati
Atharva Pariśiṣta, 1/5.
Abhiṣiktotharvamantrairmahīṁ bhuṅkte sasāgarām
Atharvaveda Bhāśya, 1/1/1.
Mantrādhīnāśca devatāḥ
Smṛtisaṅgraha.

Page 19 lines 5-6: ... though its use ..... himself.
Mantro hīnaḥ svarato varṇato vā / Mithyā prayukto na

tamarthamāha // sa vāgvajro yajamānaṁ hinasti /
Yathendraśatrus svaratcparādhāt
Pāṇinīya śikṣā, 52.

Page 19 line 12: ... the Aryan belief in the divine power of sacrifice ...

Ayam yajño bhuvanasya nābhiḥ 1/164/35.
Yajñena yajñamayajanta devās tāni dharmāṇi
prathamāniāsan
Ṛgveda, 10/90/16.

Page 19 line 12: ... for the efficacy of the sacrifice ... priest.

Vidhihīnamasṛṣṭānnaṁ, mantrahīnamadakṣiṇaṁ
Śraddhāvirahitaṁ yajñaṁ tāmasaṁ paricakṣate
Geetā, 17/13.
Yajñāṅgam dakṣiṇā tāta vedānāṁ paribṛmhaṇam
Na yajñā dakṣiṇāhīnās tārayanti kathancana
Mahābhārata, 12/79/11.

Page 19 lines 29-30: endless sacrificial ceremonies ..... Brahmana experts.

Purohitanca kurvīta vṛṇuyādeva cartvijaḥ
Tesya gṛahyāṇi karmāṇi kuryurvaitānikāni ca
Manusmṛti, 7/78.

Page 21 line 38 to Page 22 lines 1-2: For instance ..... a second."

Ātmani khalu are vijñate idaṁ sarvaṁ viditaṁ
evaṁ rūpā
pratijñā ... / Tasyāḥ pratijñāyāḥ evaṁ ahāniḥ syāt,
yadi avyatirekāḥ kṛtsnasya vastujātasya vijñeyād
brahmaṇaḥ syāt
Brahmasūtra Bhāśya, 2/3/6.

Page 22 lines 12-16: "It is a matter ..... identical."

Yuṣmadasmat pratyayagocarayoḥ viṣayaviṣayiṇostamaḥ
prakāśa
vadviruddha svabhāvayoḥ itaretarabhāvānupapattau
siddhāyām ... /
Brahmasūtra Bhāśya, 1/1/1.

Page 22 line 25: The doctrine of Maya is expounded as follows ... Here are some of the relevant passages from the *Brahmasūtra Bhāśya*:

Parameśvarādhīnā Prāgavasthā jagataḥ
abhyupagamyate / na
svatantrā / na hi tayā vinā parameśvarasya sraṣṭṛtvaṁ
sidhyati / śaktirahitasya tasya pravṛtyanupapatteḥ
avidyātmikā hi bījaśaktiḥ avyaktaśabdanirdeśyā
parameśvarāśrayā māyāmayī mahāsuptiḥ / 1/4/3.

Yatsarvajñaṁ sarvaśakti brahma tadvayaṁ
jagataḥ sraṣṭṛbrūmaḥ 2/1/22
Sarvajñasya Īśvarasya ātmabhūte iva avidyākalpite
nāmarūpe
tattvānyatvābhyāmanirvacanīye
saṁsāraprapañcabījabhūte
Īśvarasya māyā śaktiḥ prakṛtiḥ iti ca abhilapyete
Brahmasūtrabhāśya, 2/1/14.

Page 23 lines 8-12 : The object of Vedanta Sutras ... those speculations. Thus :

Etena sarve vyākhyātāh *Brahmasūtra*, 1/4/26.
Eten pradhānakāraṇavādapratiṣedhanyāyakalāpena
sarve aṇu
ādikāraṇavādā api pratiṣiddhatayā
vyākhyātā ve-ditavyāḥ
Brahmasūtrabhāśya.
Etena śiṣṭāparigrahā api vyākhyātāḥ /
Brahmasūtra, 2/1/12.
Etena prakṛtena pradhānakāraṇavādanirākaraṇakāraṇena
śiṣṭairmanuvyāsaprabhṛtibhiḥ kenacidapi aṁśena
aparigṛhītā
yenvadikaranavadastepi pratisiddhataya vyakhyata
nirakrta draṣṭavyāḥ/
Brahmasütrabhāśya.

Page 23 lines 14-16 : For example, in the Tchandogya ... origin. Thus :

Sarvāṇi ha vā imāni bhūtāni ākāśādeva
samutpadyante ākāśaṁ
pratyastaṁ yānti ākāśo hyeva ebhyo
jyāyānākāśaḥ parāyaṁam /
Chāndogya Upaniśad, 1/9/1.
Ākāśaśarīraṁ brahma / *Taittirīya upaniśad* 1/6/2
Namaste te vāyo tvameva pratyakśaṁ brahmāsi 1/1/1.
Vāyurvai gautama tatsūtraṁ vāyunā vai sūtreṇa
ayaṁ ca lokaḥ
paraśca lokaḥ sarvāṇi ca bhūtāni saṁdṛbdhāni bhavanti/
Bṛhadāraṇyaka Upaniśad, 3/7/2.
Tasya havā etasya ātmāno vaiśvānarasya mūrdhaiva
sutejāḥ
Cakśurviśvarūpaḥ prāṇaḥ pṛthagvartmā ātmā /
Chāndogya Upaniśad, 5/18/2.

Page 23 line 19: ... the Brahman, "only one without a second" ...
Sadeva somya idamagre āsīdekamevādvitīyam /
Chāndogyo Upaniśad, 6/2/1.

Page 23 lines 19-22: ... and this dogma ..... known" .....
Thus :

Na ca brahmavyatiriktam kiñcit anjaṇ saṁbhavati /
'Śadevasomyedamagra āsīdekamevādvitīyam'
ityavadhāraṇā /
Eka vijñānena sarvavijñānapratijñānāt na
brahmavyatirikta-vastvastitvamavakalpate /
Brahmasūtrabhāśya.

Page 24 lines 6-23: "These promissory ..... unacceptable."

Prakṛtiśca .. upādānakaraṇaṁ ca brahma
abhyupagantavyam /
Evam śrautau pratijñādṛṣṭāntau hoparudhyete / tatra ca ekena vijñātena sarvamanyat avijñātam vijñātaṁ bhavatīti pratīyate / taccopādānakāraṇa vijñāne sarvavijñānaṁ saṁbhavati
upādānakāraṇāvyatirekāt kāryasya /
Brahmasūtrabhāśya, 1/4/23.

CHAPTER II—THE ORIGIN OF MATERIALISM.

Page 68 (F. N.) lines 36-7: *Nishkama Karma* .....
Thus:

Karmaṇyevādhikāraste mā phaleṣu kadācana
Mā karmaphalaheturbhūḥ mā te saṅgostvakarmaṇi //
Geetā, 2/47.

CHAPTER III— MATERIALISM IN INDIAN PHILOSOPHY.

Page 76 lines 21-25 : The ideology ..... materialist way.
For example :

Yeyaṁ prete vicikitsā manuṣye astītyeke nāyamastīti
caike /
Kaṭhopaniśad, 1/1.
Ayaṁ loko, nāsti paraḥ iti Māni /
Kaṭhopaniśad, 1/2.
Svabhāvameke kavayo vadanti kālaṁ tathānye, 1/1.
Kālaḥ svabhāvo niyatiryadṛchā bhūtāni yoniḥ puruṣa iti cintyam / *Śvetāśvataropaniśad*, 1/1.
Vijñānaghana& evaitebhyo bhūtebhyaḥ samutthāya tānye-vānuviśyati na pretya saṇjñāstīti are bravīmi /
Bṛhadāraṇyakopaniśad, 2/4/12.

Page 76 line 27 : As "heretics" or "nihilists".

Samyagdarśanapratipakṣabhūtāni saṅkhyādidarśanāni nirākaraṇīyāni / 2/2/1.
Kapilasya tantraṁ vedaviruddham / 2/1/1.
Ayantu paramāṇukāraṇavādaḥ —

Anādaraṇīyo vedavādibhiḥ / Īśvarakāraṇaśṛtivirodhāt
Manvādibhiḥ aparigṛhītattvūt anapekśākāryā
śreyorthibhiḥ /
Śāṅkara Brahmasūtrabhāśya, 2/2/3.

Page 76 line 30 to page 77 lines 1-9 : According to the Sankhyas ..... have its nature)". Thus :

Śūnyaṁ tattvaṁ bhāvo vinaśyati vastudharmatvād
vināśasya /
Sāṅkhyapravacanasūtraṁ, 1/44.

Śūnyameva tattvaṁ / yataḥ sarvopi bhavo vinaśyati /
yaśca
vināśī sa mithyā svapnavat / ataḥ sarvavastūnāmādyanta-
yorabhāvamātratvānmadhye kśaṇikastvaṁ sāṁvṛtikaṁ, na
pāramārthikaṁ bandhādi / tataḥ kiṁ kena badhyeta
ityāśayaḥ /

Vināśasya vastusvabhāvatvāt / svabhāvaṁ
vihāya na padārthas tiṣṭhati /
Vijñānabhikśu Bhāśya, 1/44.

Page 80 line 10 : His highly materialistic theory of cognition .....

Tasmin ciddarpaṇe sphāre samastā vastudṛṣṭayaḥ /
Imāstāḥ pratibimbanti sarasīva taṭadrumaḥ /
Vijñānabhikśu Bhāśya, 1/87.

Yat sambaddham sat tadākārollekhi vijñānaṁ
tat pratyakśaṁ /
Sāṅkhyasūtram, 1/88.

Page 80 lines 29-31 : "What is the origin ..... their rest."

Asya lokasya kā gatiriti / Ākāśa iti / sarvāṇi havā imāni
bhūtāni ākāśādeva samutpadyante /
ākāśaṁ prati astaṁ yanti /
Ākāśaḥ parāyaṇam /
Chāndogyopaniśad, 1/9/1.

Page 80 lines 32-33 : "That which ..... names."

Ākāśo vai nāma rūpayora nirvahitā /
Chāndogyopaniśad. 8/14/1.

Page 81 lines 12-13 : "...the word ether ..... Brahman."

Ākāśaśabdena brahmaṇo grahaṇaṁ yuktam /
Brahmasūtrabhāśyam, 1/1/22.

Page 81 lines 22-23 : In the Katha Upanisad ..... condition. Thus :

Indriyāṇi parāṇyāhurindriyebhyaḥ paraṁ manaḥ /
Manasastu parā buddhiḥ buddherātmā mahān paraḥ //
Mahataḥ paramavyktaṁ avyaktāt puruṣaḥ paraḥ / /
Kaṭhopaniśad, 1/3/10.

Page 81 lines 26-27 : In Svetasvatara ..... springs." Thus :

Eko haṁso bhuvanasyāsya madhve /
sa evāgniḥ salile sanniviṣṭaḥ /
Tameva viditvā ati mṛtyumeti
Nanyaḥ panthā vidyate ayanāya //

Śvetāśvataropaniśad, 6/15.

Page 83 lines 28 et seq : The atoms are etc. ... Thus :

Sadakāraṇavannityam / Tasya kāryaṁ liṅgam / 4/1/1, 2.
Nityaṁ parimaṇḍalam / *Vaiśeṣika sūtram*, 7/1/20.
Na pralayaḥ aṇusadbhāvāt / *Nyāyasūtram*, 4/2/14.
Yataśca nālpo, yosti, taṁ paramāṇuṇ pracakśmahe /

Nyāyabhāśya, 4/2/14.

Page 84 lines 26-27 : "Bigness ..... causes."

Kāraṇabahutvāt kāraṇamahattvāt pracayaviśeṣācca mahat /

Vaiśeṣikasūtra, 7/1/9.

Page 84 line 31 : ... the "unseen principle" .....

Aṇūnāṁ manasaśca ādyaṁ karma adṛṣṭakāritam /

Vaiśeṣikasūtra, 5/2/13.

Page 85 line 16 et seq : Kanada argues ..... Thus :

Kāraṇaguṇapūrvakaḥ kāryāguṇo dṛṣṭaḥ /

Vaiśeṣikasūtra, 2/1/24.

Page 86 lines 11-12 : The Vaisheshik ..... "semi-nihilistic." Thus :

Vaiśeṣikarāddhānto nāpekśitavya ityuktam /
saḥ ardhavaināśika iti ..... /

Śāṅkarabrahmasūtrabhāśya, 2/2/18.

Kriyāguṇavyapadeśābhāvāt prāgasat / sadasat / asataḥ kriyāguṇavyapadeśābhāvādarthāntaram / saccāsat /

Vaiśeṣikasūtra, 9/1/1-4.

Page 87 lines 12-14 : He is known as an atheist ..... evidence.

Kāraṇamiśvarameka bruvate kālam svabhāvaṁ vā /
Prajāḥ kathaṁ nirguṇato vyaktaḥ kālaḥ svabhāvaśca //

Sāṅkhyakārikā, 62.
Gauḍapādabhāśya.

Page 87 lines 20-23 : Kapila lays down ... a void."

Na vijñānamātraṁ bāhyapratīteḥ /
Tadabhāve tadabhāvācchūnyaṁ tarhi //

Sāṅkhyasūtram, 1/42, 43.

Page 88 lines 15-16 : "A thing is not ..... of nothing."
Nāvastuno vastusiddhiḥ / *Sāṅkhyasūtram*, 1/78.

Page 88 lines 28-29 : "What is limited ..... of all."
Paricchinnaṁ na sarvopādānam / *Sāṅkhyasūtram* 1/76.

Page 89 lines 20-21 : "Since the root .... rootless."
Mūle mūlabhāvādamūlaṁ mūlam / *Sāṅkhyasūtram*, 1/67.

Page 90 lines 19-22 : "Nothing can be ..... consist."
Nāsadutpādo nṛśṛṅgavat / Upādānaniyamāt /
Sāṅkhyasūtram, 1/114, 115.

Page 91 lines 4-7 : Kapila holds ..... nature."
Sāmānyamacetanaṁ prasavadharmi /
Vyaktaṁ tathā pradhānam / *Sāṅkhyakārikā*

Page 91 lines 18-21 : "While both ..... Nature)."
Pūrvabhāvitve dvayorekatarasya hāne anyatarayogaḥ /
Sāṅkhyasūtram, 1/73

Page 92 lines 33-35 : "Determination ..... evidence."
Dvayorekatanasya vāpi asannikṛṣṭārthapariccittiḥ pramā /
Sāṅkhyasūtram, 1/87.

Page 93 lines 5-8 : "The proof ..... object)."
Indriyasannikarṣādireva pramānaṁ / *Bhikśubhāśya.*

Page 93 lines 13-15 : Perception ..... thereof.
Yatsaṁbaddhaṁ sat tadākārollekhi vijñānaṁ
tatpratyakśam
Sāṅkhyasūtram, 1/89

Page 96 lines 13-15: All the three ..... flux.
Thus :
Yat sat tat kśaṇikaṁ yathā jaladharaḥ santaśca
bhāvā amī /
Sarvadarśanasaṅgrahaḥ, ch. 2.
Vastu eva santānisvabhāvaṁ arthakriyākśmam /
Tattvasaṅgrahaḥ, 1808.

Page 96 lines 26-28 : The Buddhist ..... a reality.
Thus :
Uadayavyayadharmāṇaḥ paryāyā eva kevalāḥ /
Saṁvedyante tataḥ spaśtaṁ nairātmyaṁ cāti nirmalam //
Tattvasaṅgrahaḥ, 324.

Page 96 lines 29-31 : What really ..... activities.
Thus :
Kśaṇikāḥ sarvasaṁskārā iti yā vāsanā sthirā /

Sa mārga iti vijñeyaḥ ..... //

Sarvadarśanasaṅgrahaḥ, ch. 2.

Page 97 lines 3-8 : A correct ..... universal soul.
Thus :

Neśvaro janmināṁ hetuḥ utpattiviphalatvataḥ /
Ye vā krameṇa jāyante te naiveśvarahetukāḥ / /

Tattvasaṅgrahaḥ, 87, 88.

Page 97 lines 26-27 : "On account of ..... the cause)".

Abhāvādbhāvotpattiḥ nānupamṛdya prādurbhāvāt /

Nyāyasūtra, 4/1/14.

Page 97 lines 34 et seq : There are two aggregates etc. .....
Thus :

Tatra te sarvāstivādinaḥ bāhyamābhyantaraṁ ca vastu abhyupagacchanti, bhūtaṁ bhautikañca cittaṁ caittañca /

Śāṅkarabrahmasūtrabhāśya, 2/2/18.

Page 106 lines 19-20 : "Not having ..... sastras".

Caturṣu vedeṣu paraṁ śreyaḥ alabdhvā śāṇḍilyah idaṁ śāstramadhigatavān /

Śāṅkara Brahmasūtrabhāśya, 2/2/45.

Page 108 lines 28-31 : "The non-existence ..... exists."

Evaṁ prāpte brūmaḥ nābhāva upalabdheḥ iti / na khalu abhāvaḥ bāhyārthasya adhyavasātuṁ śakyate / kasmāt / upalabdheḥ / upalabhyate hi pratipratyayaṁ bāhyorthaḥ staṁbhaḥ kudyaṁ ghaṭaḥ paṭa iti / na ca upalabhyamānasyaiva abhāvo bhavitumarhati /

Brahmasūtrabhāśya, 2/2/28.

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